BULLETIN

OF

THE JOHNS HOPKINS HOSPITAL.

Vol. VI.—No. 47.] BALTIMORE, FEBRUARY, 1895. [Price, 15 Cents.

CONTENTS.

	PAGE.
Gonorrhœal Pyelitis and Pyo-Ureter cured by Irrigation. By Howard A. Kelly, M. D.,	19
Primary Diphtheria of the Lips and Gums. By Simon Flexner, M. D., and Herbert D. Pease, M. B.,	22
A New Apparatus for Applying Plaster Jackets, with a Brief Review of the Methods hitherto used. By R. Tunstall Taylor, M. D.,	25
Uretero-Cystostomy performed seven weeks after Vaginal Hysterectomy. By Howard A. Kelly, M. D.,	27
Two Successful Cataract Operations on a Dog. By Robert L. Randolph, M. D.,	28
Sigmoido-Proctostomy. By Howard A. Kelly, M. D.,	30
Proceedings of Societies:	
The Hospital Medical Society,	32
Exhibition of Surgical Cases [Dr. Finney];—Acute Pancreatitis, Disseminated Fat Necrosis, Parapancreatic Abscess [Dr. Thayer];—Myxœdema and Exophthalmic Goitre in Sisters [Dr. Oppenheimer].	
Notes on New Books,	35
Books Received,	36

GONORRHŒAL PYELITIS AND PYO-URETER CURED BY IRRIGATION.

By Howard A. Kelly, M. D.

[*Read before the Johns Hopkins Medical Society.*]

In the case of which I shall give a detailed account in this article, I have been able to realize one of the important benefits attainable by my new method of examining the female bladder and ureters (*v.* Johns Hopkins Hospital Bulletin, Nov. 1893, and Amer. Jour. Med. Sciences, Jan. 1894).

The patient came to me with an extensive accumulation of pus in the left ureter, extending up into the pelvis of the kidney. This was caused by a stricture of the vesical end of the ureter with a dilatation above it, associated with a gonorrhœal infection.

I treated the stricture by dilating it with a series of ureteral catheters, increasing in diameter from 2 mm. up to 5 mm.

After drawing off the purulent fluid, the ureter and pelvis of the kidney were washed out with medicated solutions. The calibre of the stricture was enlarged, reducing the quantity of the accumulation above it from 150 to 100 cc. The purulent character of the secretion was removed and all trace of gonococci disappeared.

My patient was sent to me by Dr. Stark, of Cincinnati, O. She was a married woman, slight, somewhat haggard looking, thirty-one years of age. She had one child four years ago, without any special difficulty, her only pregnancy in six years of married life. The menses were regular and without pain. Headaches were rare; the appetite was good and the bowels regular.

She was feeling depressed and had lost weight, and complained of a severe pain on urinating, persisting for about a half-hour afterwards. She had also a sense of pressure in the bladder, and was obliged to urinate every two to three hours. The trouble was especially distressing at night. She had no acute pain, but an aching in the limbs, and lower abdominal discomfort. The appearance of the urine as noticed by her varied greatly, being clear at times, and at other times containing much yellow sediment.

My examination showed that the vaginal outlet was torn back near the anus, but was well lifted up under the symphysis by an intact levator ani. The cervix was in the axis of the vagina somewhat low down, showing a slight tear, and the uterus was in retroflexion. There was no marked tenderness of the uterus, the left ovary was displaced downward and tender on pressure, but not adherent. On examining the anterior wall of the vagina no special tenderness was developed on palpating the bladder.

The ureters were then palpated *per vaginam*, and the left

distinctly felt to be harder than normal and somewhat thickened, but without marked tenderness. The left ureter also showed a displacement towards the pelvic floor.

The bladder was examined under atmospheric dilatation with the patient in the knee-chest position, through the No. 10 speculum. There were abundant evidences of a patchy, mild grade of cystitis. The field opposite the ureter, the posterior pole, and its surrounding area were of a mottled red, injected appearance, the vessels being entirely obscured; this injection increased towards the vault, where no normal background appeared. The vault over an area 4x5 cm. was covered by fine granules, averaging one or two to the square millimeter, most marked on the right side. The tips of each of these granules reflected the light and gave the surface a bright studded appearance. On the left side in places the surface presented a superficial worm-eaten appearance. On the right lateral wall 2½ cm. behind the ureteral orifice was a ridge 2 mm. in height, extending downwards to the base of the bladder. Near the right ureteral orifice was an area of intense congestion presenting an œdematous appearance, surrounding the ureter, whose orifice could only be located by a little pallor in the form of a crescent.

Posterior to the right ureter was a superficial ulcer 2x3 mm., with a narrow red border and a yellow centre.

The left ureteral orifice was situated on a truncate cone about 6 mm. in diameter at its base and 2 mm. at the top. It was slightly œdematous, and on the urethral side broken up by a number of irregular papillary eminences. The site of the ureteral orifice at the first examination was marked by a yellow spot of pus. On introducing a searcher into the opening of the orifice, a thin stream of pus escaped and ran down over the bladder wall.

Upon leaving the ureteral catheter in the left ureter for three minutes, 11 cc. of dark fluid escaped, followed by 6 cc. of fluid containing pus. In the twenty-four hours following the examination the patient passed 700 cc. of urine.

During the whole time the patient was under treatment, lasting from the 1st of March to the 4th of August, 1894, I catheterized her left ureter about 120 times in all. The first three weeks of her stay were passed in vain endeavors on my part to get the ureteral catheter well into the ureter. Three difficulties prevented this at first. In the first place the irregular papillary prominences on the left side in the neighborhood of the ureteral orifices obscured it and made it impossible to locate it with certainty, after the first examination in which the pus was seen in it as stated; in the second place the location of the orifice was unusual, lying extremely displaced to the left; in the third place there was a spiral stricture of the intravesical portion of the ureter, and it was necessary for me to learn the twist of the stricture before I could pass the catheter at once at every sitting. I cannot say too much in praise of the tenacity and pluck of my patient throughout the first part of the treatment, which was very trying to me and more so to her, as I was entirely uncertain as to the ultimate outcome and could give no positive assurances.

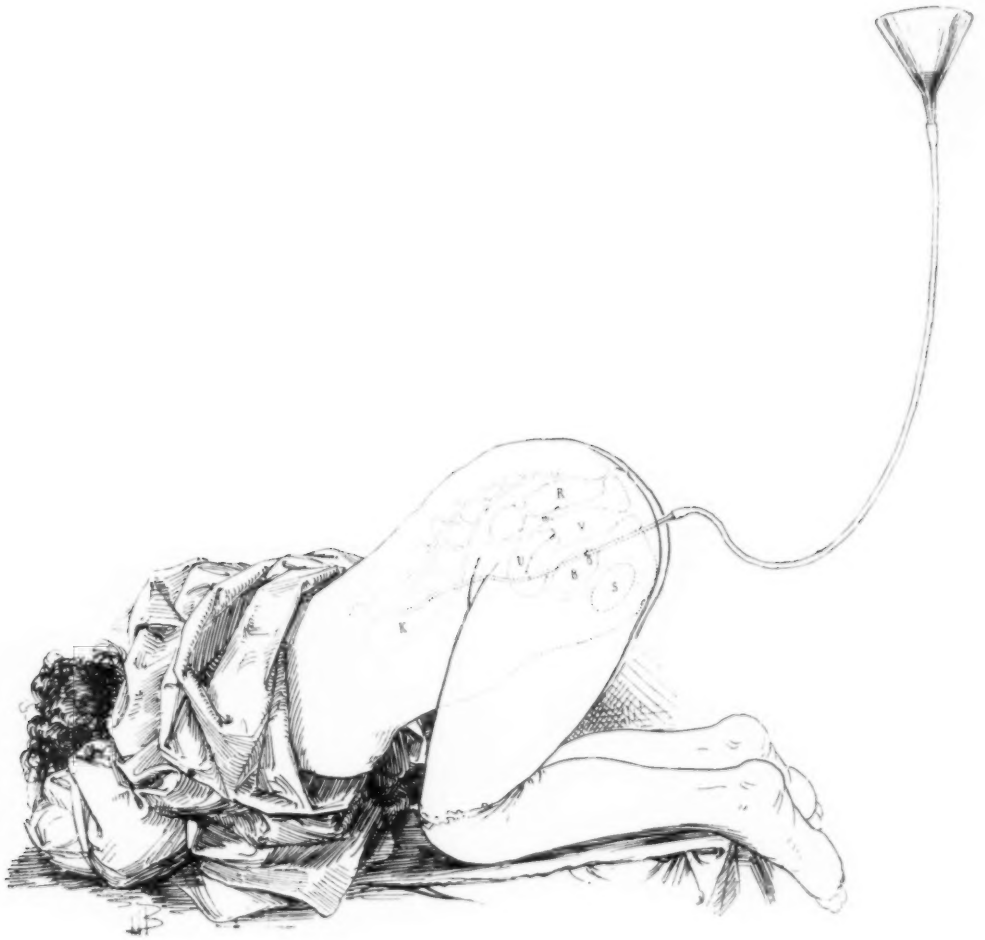
After almost daily efforts for three weeks the stricture was finally cleared by an accidental turn of the hand; this was more readily repeated on two or three occasions subsequently, but not without discouraging failures, when the ureteral orifice was definitely located on the side of the pyramid in relation to certain papillæ and the direction of the stricture was ascertained so that the catheter could after this be passed with ease. After pushing the catheter through the stricture it entered about 8 cm.; a distinct sense of resistance was felt in attempting to withdraw it, due to the bite of the stricture, which was about 1½ cm. long. So long as the point of the catheter went no further than the stricture no urine escaped, but as soon as the catheter cleared the stricture, pale urine began to pour out in a steady stream, continuing until 130 cc. was collected in three minutes. Sometimes the first urine drawn off would be of a reddish-brown color, followed by a whitish sediment, and at the last a thick, creamy fluid like pure pus.

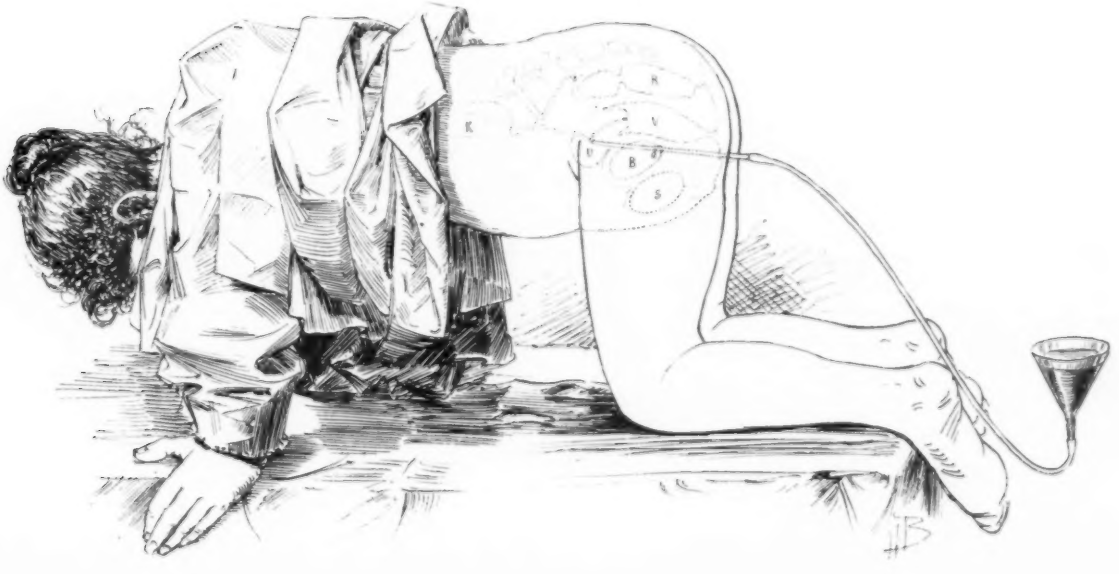
The fact that so much urine escaped in so short a time proved conclusively that the case was one of extreme dilatation of the left urinary channels above the stricture, for the normal rate of secretion is but one cubic centimeter a minute for both ureters together, or one and a half in three minutes for one ureter. The discharge of 130 cc. would be twenty-nine times the normal amount, or at the rate of about twenty-two gallons a day for both sides together. Thus by a *reductio ad absurdum* proving that the case was a dilated pyo-ureter and pyelitis.

After drawing off all the fluid, a piece of fine rubber tubing with a funnel at the end was connected with the catheter, and a saturated boric acid solution, two-thirds of the quantity of fluid taken out, was run into the ureter by gravity, by simply elevating the funnel filled with the fluid from 40–60 cm. above the level of the bladder. Care was taken to have the tubes full of fluid so as to inject no air. The patient during these manipulations was in the knee-breast position. She took no anæsthesia, as the treatment was not painful. After introducing the catheter into the ureter she raised her body on her hands so as to make it horizontal, to better dispose the fluid to run out. When the injection was given she again let her chest down to the table, and rose again when it was to flow out. I found that I could wash the urinary tract repeatedly with the same fluid if I desired it, by holding the funnel high when the fluid should run in, and by holding it an equal distance below the level of the table when all the fluid would well back into it again, often bringing too a considerable amount of shreddy white debris from the ureter.

After the first few treatments of this kind she began to experience relief from her pain and was much less frequently disturbed at night.

An examination of the urine made by Dr. Barker in the pathological laboratory of the Johns Hopkins Hospital states that it was of a straw color, neutral in reaction, and containing an abundant muco-purulent, stringy, tenacious sediment. There was a small amount of albumen, but no sugar and no casts. The specific gravity was 1032. There were a great many polynuclear leucocytes, crowds of pus cells, and many diplococci, nearly all of which were within the protoplasm of the leucocytes. Octahedra of calcium oxalate were found, and a few cylindroids. There were no tubercle bacilli, and no other bacteria than diplococci, which were of the typical





appearance of gonococci, and much smaller than staphylococci or streptococci.

The bladder walls were treated by occasional applications of a five per cent. solution of nitrate of silver, applied directly to the affected areas on absorbent cotton with an applicator, and by daily irrigations of a bichloride solution 1–150,000.

My first effort in the treatment of the case was to secure a continuous drainage of the ureter, avoiding all accumulation above the stricture, hoping by this plan to induce a contraction of the ureteral walls. To do this I made a short ureteral catheter 2 mm. in diameter and 5 cm. long, with a little shoulder about 2 cm. back of the inner end to keep it from slipping out of the ureter after introduction, and with a flange 6 mm. in diameter at the lower end to keep it from slipping altogether into the ureter. I placed this in the ureter by means of a searcher used as a mandarin to conduct it through the stricture. I found, however, that its presence gave so much pain and increased the irritation of the bladder, after being in place for twelve hours, that I was obliged to abandon its further use, although it acted well mechanically.

My next plan, which was successful in curing the case, was to have ureteral catheters made in four sizes, increasing from the smallest, 2 mm., to the largest, which was 5 mm. in diameter. The points of the catheters were blunt and straighter than the ureteral catheters ordinarily used, on one side almost on a line with the shaft.

In the course of two months the ureter was dilated sufficiently to permit the introduction of the largest catheter, from the end of which the accumulated urine would drop in a large free stream. With the catheters I began systematically to wash out the ureter and kidney with a bichloride of mercury solution 1–150,000, constantly increasing the strength until 1–16,000 was used. The treatment with the bichloride was interrupted several times for the injection of a one per cent. nitrate of silver solution, and once for a weak iodine solution. Towards the end while using the larger catheters I was obliged some six times to suspend the treatment for from two to three days on account of a chill followed by elevation of temperature from 102°–104° F. with a quickened pulse (120), headache, nausea and pain in the left inguinal region and legs. She was flushed and restless and suffered from sleeplessness at these times.

The result of the bichloride washings was a complete disappearance of pus cells, leucocytes and gonococci from the urine, and the reduction of the size of the distended ureteral tract from one holding regularly from 140–150 cc. down to 90 or 100 cc. The bladder assumed a normal appearance and she became able to sleep through the night without rising once. She gained 20 pounds in weight and resumed the rosy appearance of perfect health, with a corresponding remarkable improvement in spirits.

The treatments were discontinued August 8, 1894, and I saw her again in January, 1895, and then on two occasions catheterized the ureter, drawing off only 90 and 100 cc. of clear urine from the left ureter without a trace of pus or cocci. She has therefore recovered from the infection, but still has a stricture of the ureter of larger calibre with a lax distended ureter above it.

I made several attempts to empty the ureter by massage, with considerable success at first, but the procedure became so painful that it had to be stopped. Just before the massage the bladder was emptied by catheter, and immediately after treatment as much as 90 cc. of urine were secured.

I demonstrated the success of the massage and mapped out the exact positions in which to make pressure, by placing a catheter in the ureter with the patient in the dorsal position, with a rubber tube attached to its outer end, a straight glass tube 50 cm. long attached at the other end of the rubber tubing filled at once with urine to the level of the ureter and acted as a manometer. Respiratory movements were traced by its rhythmical ascent and fall. On making pressure over the ureter through the abdominal wall the column ascended in the vertical glass, and by increasing the pressure could be forced out over the top. If the pressure was made to one side there was only a slight effect or none at all. By marking all the points of effective pressure on the skin and afterwards connecting the markings, the course of the ureter was accurately mapped out.

The following novel and important points are demonstrated by this case:

1. Stricture of the lower extremity of the ureter can be diagnosed without any operation, by using the cystoscope with the bladder dilated with air by posture.

2. Stricture of the ureter can be improved by gradual dilatation by a series of hollow bougies (catheters) and without a kolpo-ureterotomy. (See Kelly, Johns Hopkins Gynecological Report, No. 1.)

3. A stricture through which a No. 5 (5 mm. diam.) bougie is passed every day for several weeks will still hold back the urine if the walls of the ureter above have lost their contractility.

4. Pyo-ureter and hydro-ureter can be diagnosed by drawing off in a few minutes such a quantity of fluid as it is manifestly impossible for the kidney to secrete in that amount of time.

5. Pyo-ureter and pyelitis can be cured by washing out the ureter and pelvis without any preliminary cutting operation to disclose the ureteral orifice (as in kolpo-uretero-cystotomy, Bozeman).

6. Variations in pressure in the column of fluid in a distended ureter can be demonstrated by a manometer attached to the ureteral catheter.

7. In this way the course of the ureter can be mapped out.

The Johns Hopkins Hospital Reports, Volume IV, No. 6 (Report in Surgery II), Now Ready.

CONTENTS: THE RESULTS OF OPERATIONS FOR THE CURE OF CANCER OF THE BREAST, PERFORMED AT THE JOHNS HOPKINS HOSPITAL FROM JUNE, 1889, TO JANUARY, 1894.

By WM. S. HALSTED, M. D., *Professor of Surgery, Johns Hopkins University, and Surgeon-in-Chief to the Johns Hopkins Hospital.*

Price, $1.00. Address THE JOHNS HOPKINS PRESS, BALTIMORE, MD.

PRIMARY DIPHTHERIA OF THE LIPS AND GUMS.

By Simon Flexner, M. D., *Associate in Pathology*, and Herbert D. Pease, M. B., *Fellow in Pathology.*

[*From the Pathological Laboratory of the Johns Hopkins University and Hospital.*]

The bacillus diphtheriæ has by the more recent studies of the subject been shown to be present sometimes in pathological processes which do not present the characteristic features of diphtheria. Among these may be mentioned follicular or lacunar tonsillitis, fibrinous rhinitis and otitis media.* It has also been found, although associated as a rule with other micro-organisms, in infected wounds of the surface in persons who were not themselves suffering from diphtheria and who had not been exposed to the disease.† And in a comparatively few instances virulent forms of this organism have been found upon the mucous membrane of the healthy throat.‡

The significance of those cases in which the bacillus diphtheriæ is found in the body in the absence of the symptoms which usually accompany its presence, consists not so much in the danger threatening the host, as in the possibility of danger to other individuals, more susceptible perhaps, with whom such an infected person may come into contact. It is a growing belief that in just those cases in which the usual phenomena of diphtheria are wanting it is important to determine by bacteriological means the presence or absence of the Loeffler bacillus, for now, since attention has been directed to these atypical forms of diphtheria, reports of cases in which from a slight and unsuspected diphtheritic infection instances of typical diphtheria have taken their origin are not uncommon.§

These considerations have led us to report two cases in which recently the bacillus diphtheriæ has been isolated at autopsy from the membrane and exudate upon the gums and lips of two grown individuals. The appearances of the membrane in one and the exudate in the other case were in no way typical of diphtheria, and the cases obtain an additional interest from the fact that during life the patients presented no symptoms referable to the presence of the Loeffler bacillus. No other focus of diphtheria existed in the body as far as could be determined. The pharynx and larynx were both free from exudate or membrane, and thus while it must be assumed that in these cases the diphtheria bacilli often reached the mucous membrane of the pharynx, it must be admitted that arriving there they did no damage. The instances of laryngeal diphtheria in which the bacillus diphtheriæ can be found by cultures to be present upon the pharyngeal mucous membrane in the absence of any lesion in the latter situation are very well known.

The cases present, also, interesting examples of poly-infection with bacteria. That several different micro-organisms may coexist in the body, each producing its effect, perhaps each a peculiar effect, is a fact not very infrequently demonstrable at autopsies upon human beings, and yet it is one not much emphasized in writings upon infection. The frequency and variety of terminal infections with bacteria in the course of chronic diseases, as determined by the bacteriological study of the autopsy material of this laboratory, have recently been described elsewhere.* The cases here reported are offered as additional examples of multiple and terminal infections.

Both of the cases are from the medical wards (Prof. Osler) of the hospital.

Case 1.—J. P., white, aged 67 years. He had been in the hospital on three separate occasions, the first being on the 17th of January, 1894. His symptoms at that time pointed to arterio-sclerosis and chronic nephritis. The second admission was on June 29th, 1894, at which time he was suffering from a double tertian malarial infection. The last admission was on October 17 of the same year. At this time he was suffering from dyspnœa and œdema of the legs. The urine was pale, its specific gravity never exceeded 1010, it was albuminous and always contained hyaline and granular casts. He incessantly scratched his legs, in consequence of which he developed a cellulitis of the left leg which was incised on January 17th, 1895. The subcutaneous tissue was found diffusely infiltrated, showing here and there pus pockets. Posteriorly there was a large abscess extending from the popliteal space, which it involved, to the heel. The suppuration was intermuscular, the fasciæ being dissected up and disintegrating. Muscles and periosteum were not involved. From the cover-slips and cultures streptococci were obtained. He died on January 20th.

Autopsy, January 21st (Dr. Flexner). The anatomical diagnosis was as follows: Chronic diffuse nephritis (small red granular kidneys); arterio-sclerosis; fibrous myocarditis; globular thrombi in right auricular appendage; heart hypertrophy; vegetative endocarditis (recent); sero-fibrinous pericarditis. Healed (?) tuberculosis of lungs; thrombosis of pulmonary artery without infarction; congestion and œdema of lungs. Tubercular peritonitis. Cirrhosis of liver. Cellulitis of leg. Acute gastritis. *Diphtheria of lips, gums and teeth.*

The following is the abbreviated protocol: Body 157 cm. long. Slightly built; emaciated. Oedema of ankles and hands. Suppuration of tissues of the left leg. *Oral cavity:* The mucous membrane of the lips is congested. Where the lips come in contact with the teeth there is to be seen upon the surface a greyish, necrotic-looking membrane, which upon removal leaves a defect in the epithelial covering of the mucous membrane. The resulting ulcer is deep red in color. The upper and lower lips are both affected, and the membrane is most marked over their central portions. The teeth are badly eroded, the crowns only retaining their enamel covering. The

* Koplik, New York Medical Journal, 1892; Councilman, American Journal of Medical Sciences, November, 1893; Flexner, American Journal of Medical Sciences, March, 1895.

† Brunner, Berliner klinische Wochenschrift, 1893, Nos. 22, 23 and 24.

‡ Loeffler, Hoffmann, Fraenkel, Feer, and Park and Beebe.

§ Felsenthal, Münchener med. Wochenschrift, 1895, No. 3; Washbourn and Hopwood, British Medical Journal, Jan. 19, 1895.

* Welch: The Middleton Goldsmith Lecture, 1894.

gums are somewhat retracted, and covering the exposed portion of the teeth, and in part the gums, there is a membrane similar to that upon the lips. The mucous membrane of the tongue and pharynx is pale and free from membrane or exudate; the larynx also is free. *Peritoneal cavity:* It contains no excess of fluid. The peritoneum covering the lower zone of the abdomen, and particularly the pelvis, is covered with a large number of tubercles. These are either miliary or conglomerate in form; and some of them are surrounded by a zone of dark pigment. Tubercles also exist in the mesentery. *Intestines:* Except for some patches of congestion, nothing abnormal is to be seen. The mucous membrane is free from ulceration. *Stomach:* The mucous membrane is intensely congested and small ecchymoses and erosions are present within it. The surface is covered with sticky pus. *Pericardium and Heart:* The pericardial cavity contains 20 cc. of quite clear fluid, and both of its layers are covered with a fibrinous exudation, easily removed, and exposing congested vessels and small points of hemorrhage. The heart is hypertrophied and dilated. Upon the free border of the mitral valve several translucent, fresh vegetations are visible. The muscle of the apex is converted into fibrous tissue, and at this point there is a globular dilatation. The segments of the aortic valve are not shortened, but they are diffusely thickened. At the insertion of the middle segment a calcified patch occurs, upon which a fresh translucent thrombus is situated. The coronary arteries are extensively atheromatous. *Lungs:* The left shows retracted scars and small calcified areas. The right is free from tuberculous lesions. *Urinary bladder:* It is contracted and almost empty. The mucous membrane just above the trigonum is diffusely hemorrhagic, while in other parts it is injected and contains small ecchymoses.

Bacteriological Examination.—The bacteriological study embraced first the phlegmon of the left leg, the acute pericarditis, the vegetations on the heart valves and the acute cystitis. In the first and last streptococci were found in large numbers; in the other streptococci were also present, but in smaller numbers. The tubercles in the peritoneum were not examined for tubercle bacilli, but from their structure there can be no doubt that tubercle bacilli could have been demonstrated in them. The main interest, for the purposes of this paper, concerns the bacteriological study of the exudate upon the teeth, gums and lips, and the purulent material covering the mucous membrane of the stomach. The cover-slips made at the autopsy showed many bacteria in the membrane and exudate upon the lips. Among these were diplococci, small and large bacilli and chains of bacilli. Upon the blood-serum tube inoculated from the exudate a good growth was obtained in 24 hours. Cover-slips from this showed as the predominating organism a thin bacillus three or four times as long as broad, and which showed a tendency to grow in small clumps, the individuals being arranged side by side in nearly parallel lines, and also often placed at angles to one another. However, the size was quite variable, some individuals being five or six times as long as broad. A more striking characteristic was the variation in form, for slightly curved forms were to be seen, as well as forms with swollen ends or swellings elsewhere in their substance. This irregularity was all the more distinct in that these swellings often possessed the property of staining more intensely than the remainder of the rods. This irregularity of staining was well brought out in preparations treated with Stirling's gentian violet stain, and subsequently with a 1:1000 solution of acetic acid. But Loeffler's methylene blue solution also sufficed to show the differences in a striking manner. Besides this bacillus only a coccus grew upon the blood serum, the greater number of organisms transplanted from the membrane refusing to be cultivated upon this medium.

From the morphology of the bacilli alone it seemed probable that the organism was the bacillus diphtheriæ, but to remove all doubt further tests were applied. The bacillus grown upon various media, namely, agar-agar, faintly alkaline bouillon, litmus bouillon and litmus milk, gave the following reactions. Upon agar-agar slants there was a faint growth along the line of the inoculation after 24 hours at 37° C. Later there was an increase in the width of the growth, but not in its thickness. It remained delicate and translucent. Single colonies upon agar-agar plates were not distinguishable from the colonies of a control culture. The ordinary bouillon and the litmus bouillon showed in 24 hours a faint cloudiness, which increased a little during the succeeding 24 hours and then remained stationary. A slight very finely granular sediment formed in the bottom of the tube, the bouillon, however, not having been rendered clear thereby. The first effect upon the litmus was to redden it slightly, and, comparing it with a typical culture of the bacillus diphtheriæ obtained from a case of faucial diphtheria, it was found that the two cultures produced the same amount of reddening in twenty-four hours; nor was there any perceptible difference until the fourth day, when the culture from the throat, which was used as a control, showed a somewhat greater reddening than the other. The litmus milk pursued a similar course, except that in it the acid production went on more rapidly, the control culture again showing on the fourth day a more marked acid reaction.

A half-grown guinea-pig received subcutaneously on February 11, 1895, at 2 P. M., one cubic centimetre of a turbid suspension from an agar-agar culture several days old. A node corresponding with the seat of inoculation had formed by the next day, but the animal did not appear to be ill. On the 13th the node had increased in size, the animal was quiet, sat in one corner of the cage with its hair ruffled, and showed a disinclination to move. It ate little. By the 14th the node had further increased in size and had by this time become very hard. It was incised and the tissues were found to be infiltrated with a greyish-white firm fibrinous material. Cover-slips prepared from this material showed large numbers of the typical bacilli. After several days the animal seemed gradually to recover, it began again to eat, an ulcer formed at the seat of inoculation, and after two weeks it is still alive, although much emaciated. The ulcer has not yet healed.

From the properties which this organism exhibited there can be no doubt that it is the bacillus diphtheriæ, although not a form possessed of decided virulence.

The blood-serum culture from the stomach gave only two

organisms. The predominating one was a short bacillus with sharpened ends, tending to grow in chains; and the other agreed with the bacillus isolated from the membrane upon the mouth both in form and in cultural properties. Its virulence was not tested upon animals.

To summarize this case, it is seen to have been one of chronic nephritis associated with arterio-sclerosis, heart hypertrophy and cirrhosis of the liver, in which there was a triple infection: 1, old tubercular lesions in the lungs and tubercular peritonitis; 2, streptococcus cellulitis, pericarditis and endocarditis; 3, diphtheria of the gums, lips and stomach. It may be questioned whether the diphtheria bacillus is to be considered the cause of the acute gastritis, and it must be admitted that the data at hand do not permit of a conclusion upon this point. But that the bacillus diphtheriæ may cause actual diphtheritic processes in the stomach has been shown by the bacteriological study of some cases associated with faucial diphtheria; and the variety of inflammations in the throat with which this bacillus is associated makes it more probable still that it may give rise under exceptional circumstances to an acute gastritis such as was present in this case.

Case 2.—A. R., white, aged 36 years, was admitted to the medical wards, January 30, 1895. He complained of dropsy and dyspnœa. On admission there was general œdema, which continued until death. *Lungs:* The patient had several attacks of brisk hæmoptysis. The cough was severe; the expectoration blood-tinged. On the evening of February 1st he had a chill, and the temperature, which hitherto had been subnormal, now rose to 102° F., and ranged from 100°–103° until the 9th inst., when it fell to normal. During these 8 days the signs were: dulness and flat tympany over the right upper lobe, with tubular respiration and large crackling, resonant râles. Breathing tubular. When the temperature fell on the 9th it was regarded as the crisis. The upper lobe did not clear up, tubular respiration with fine crackling râles being still heard on the 12th. On the 11th the temperature again rose, and it pursued a fluctuating course, ranging from 105.6° to 99° for two days. On the 13th dulness was found over the upper left front, and the vocal resonance was increased. A pure leucocytosis, reaching at its height 40,000, was present during the last days of life. *The urine* contained albumin, red blood corpuscles, pus and epithelial cells and blood, waxy, hyaline, granular and epithelial casts in abundance. Death occurred on the 14th inst.

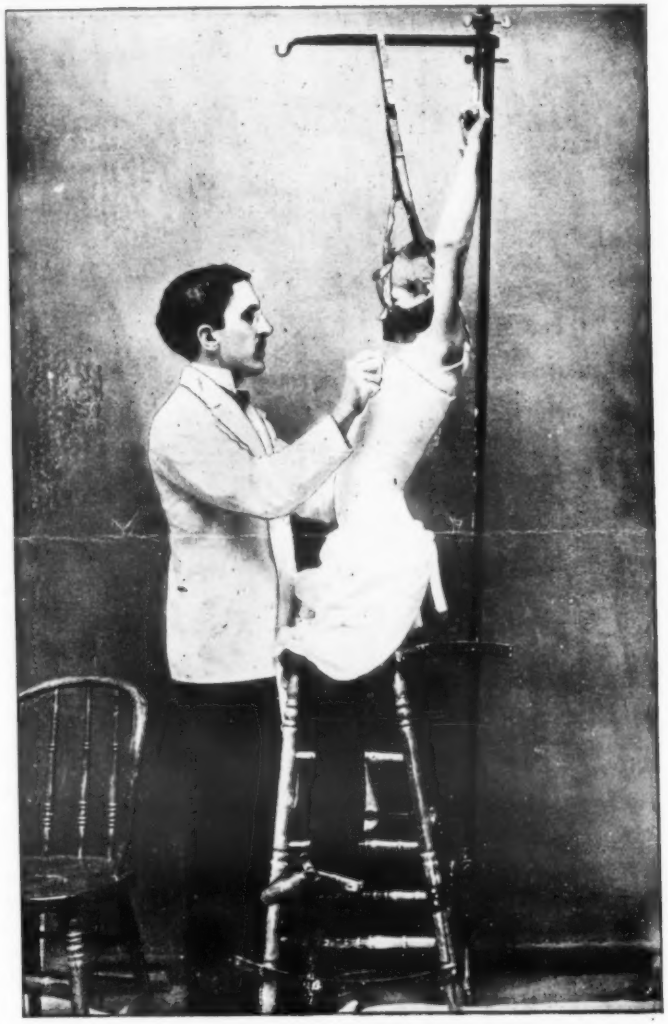
Autopsy, February 15th (Dr. Flexner). *Anatomical Diagnosis:* Lung tuberculosis with cavity formation; chronic interstitial pneumonia with tubercular bronchiectatic cavities. Acute lobar pneumonia. Chronic diffuse nephritis (large white kidneys). Tuberculosis of the bronchial, tracheal and mesenteric glands. Fatty degeneration of the heart. *Diphtheria of lips.*

An abstract of the protocol is as follows: Body 170 cm. long, strongly built and well nourished. There is œdema of the extremities and face. *Lips:* They are covered with a greyish-white exudate, which, upon the separation of the upper and lower lips, adheres principally to the lower one. This exudate can be easily removed with the finger, and there is no defect of the epithelium visible beneath it. *Lungs:* The upper lobe of the right lung is occupied by several cavities, the largest one being situated at the apex. The substance of the lung between the cavities is firm, pigmented and indurated. In the anterior portion there is a diffuse tuberculous infiltration, undergoing softening. Numerous small bronchiectatic cavities with caseous walls are present in this portion of the lung. Miliary and conglomerate tubercles exist in the indurated tissue of this lobe. In the apex of the left lung are two depressed pigmented scars. The entire upper lobe is consolidated, granular, and grey in color. There is no evidence of resolution in this lobe. The lower lobe is congested and œdematous. *Kidneys:* Together they weigh 475 grams. The average dimensions are 12.5x7x4 cm. The cortex measures 9 mm. The two kidneys are alike. The capsule strips off easily; the surface in general is pale, but shows a slight mottling with red. On section the striæ are coarse, the surface is œdematous, the glomeruli are pale. The consistence of the organs is diminished. *Pharynx:* The mucous membrane is pale and free from exudation. *Larynx:* A few superficial losses of substance occur in the mucous membrane, being most numerous over the true vocal cords. *Frozen sections* of the kidneys show the epithelium of the labyrinthine tubules to be granular and fatty. The tubules in the pyramidal portion contain at times blood-coloring matter. An occasional cast is met with in the tubules. The interstitial tissue is increased in foci.

Bacteriological Examination.—From the lung cavity tubercle bacilli and many encapsulated diplococci were found in cover-slips. From the consolidated lobe of the left lung the micrococcus lanceolatus was obtained. But of especial interest is the result of the study of the exudation upon the lips. Cover-slip preparations made from the exudate showed a variety of bacteria, among which the bacillus diphtheriæ was not recognized. The blood-serum culture gave, however, after 24 hours at 37° C., a growth in which the predominating organisms were a bacillus which morphologically resembled the bacillus diphtheriæ and a streptococcus. Discrete colonies containing one or both of these organisms were present upon the first tube, the majority of the transplanted bacteria having refused in this as in the previous case to grow upon the blood serum.

The bacilli were tested upon blood-serum, agar-agar, alkaline bouillon, litmus bouillon, litmus milk and potato, and compared with a known control culture. The bacilli from the exudate behaved in a characteristic manner in general, showing, however, one or two variations. In bouillon a slight sediment formed in the first 24 hours, which increased in the next 24 hours and then remained stationary, but a slight cloudiness persisted in the fluid. The bacilli were non-motile. On potato, after 24 hours at 37° C. there was no visible growth, but cover-slip preparations showed that there had been an increase of the organisms. At the end of the next 24 hours a slight greyish-white growth could be seen upon the potato. The litmus bouillon was rendered red in 48 hours in about an equal degree with the control culture. The litmus milk reaction was typical. Blood-serum to which an infusion of litmus had been added before coagulating the serum so as to obtain a blue medium, served excellently for demonstrating the acid-producing power of the organisms. There is a more rapid multiplication and more abundant growth of the bacilli

Taylor's Plaster-Jacket Stool.



Position of the Patient while the Jacket is applied.

upon it and, in consequence, a greater acid formation. The first appearance of red is in the water of condensation which collects at the lower part of the tube between it and the culture medium; the red color gradually extends over the surface and also into the depth. The final effect is to produce a diffuse and intense reddening of the previously blue culture medium, which shows especially well when viewed with reflected light.

A half-grown guinea-pig was inoculated subcutaneously with a solid culture, and at the site of inoculation there developed a well-marked local reaction in 2 days. The animal looked ill. At the time of writing (10 days after the inoculation) the animal still lives.

To summarize this case, it was one of chronic pulmonary phthisis and Bright's disease, the terminal event of which was an acute lobar pneumonia, to which was added in the last days of life an infection with the bacillus diphtheriæ.

There can be but little doubt, we think, that in both of these cases the diphtheria developed during the last days of life, although in the first instance the reaction was much greater than in the last. As the first patient had been in the hospital for a number of weeks, it is probable that the infection originated in the hospital. In the same ward a nurse developed a typical case of diphtheria just about the time of his death, and may easily enough have been the source of infection, although a reverse order is not to be excluded. These cases remind one, moreover, of the small group of cases of latent diphtheria which Heubner* has just reported as occurring in children, in which the disease developed insidiously and was unsuspected until laryngeal stenosis suddenly developed, or the fact was revealed at autopsy. The affected children had been in hospitals suffering from some chronic disease.

* Berliner klin. Wochenschrift, December, 1894.

A NEW APPARATUS FOR APPLYING PLASTER JACKETS, WITH A BRIEF REVIEW OF THE METHODS HITHERTO USED.

BY R. TUNSTALL TAYLOR, M. D.

[*Read before the Johns Hopkins Medical Society.*]

Having had charge for some months of the "Plaster Room" in the Children's Hospital, Boston, and repeatedly used the methods up to that time employed there, for the application of plaster jackets, it became obvious to me that the resulting jackets were not in *all cases*, what one might wish for in the treatment of Pott's disease.

These now familiar methods consisted of applying jackets in suspension of the patient, as originally advocated by Dr. Sayre, but more commonly in the prone position on a hammock, as advised by Davy and modified by Brackett.

The objection to the first method was the fright and fatigue it caused in the patients, and that the finished jacket in a short time allowed more or less forward flexion of the spine, in that it was not applied with the spine well extended backwards.

Actual distraction of the vertebræ from each other by means of suspension, which was formerly supposed by some and now even urged as an advantage in treatment by many, is slight and even questionable.

It may not be amiss in this connection to quote Dr. Sayre's early views and Bradford and Lovett's rather recent expressions in regard to this subject.

In November, 1874, Dr. Sayre first applied a plaster jacket by means of suspension. In speaking of a case he had one year later in September, 1875, in which he had made lead-tape tracings of the spine with the patient standing and then suspended, he says: "The change of position is seen; thus proving with mathematical certainty the alteration that had taken place in the *compensating curves* of the spine, *without, however, making any material change at the angle of the deformity.*"

Bradford and Lovett say: "Suspending a healthy person by the *head*, obliterates the physiological curves (cervical and lumbar lordosis, dorsal kyphosis), and the spine becomes straight, so far as its formation will allow.

"The spine of a new-born child becomes straight by suspension, but in an adult the changes in the shape of the bones, the strength of the ligaments and the tension of the muscles prevent the spinal column from becoming perfectly straight.

"In suspension by the axillæ or arms, the strain comes upon the latissimus dorsi, and though the superimposed weight, which would fall upon the lower part of the spinal column is removed, yet the curvatures in the upper part of the spine are not made straight.

"In suspension in old caries of the spine, it is only the physiological curves which are obliterated; the sharp kyphosis *is held too firmly by inflammatorg adhesions* to permit of correction. *In earlier cases with movable vertebræ* the *intra-vertebral pressure must be in a measure diminished* at the point of disease by suspension, *but suspension does not cause a disappearance of the sharp angular projections at the point of disease, and in cases that present themselves for treatment the deformity cannot be corrected in that way.*"

These views I hold, and think I have seen clinically but little gained by suspension, in so-called distraction of the healthy from the diseased vertebræ, or in lessening the deformity in Pott's disease, the physiological curves being alone affected by it.

"The hammock method" of applying jackets offers certain advantages in lower-dorsal and lumbar disease, in that it affords a comfortable position and a snugly fitting jacket. But in the upper and mid-dorsal caries, we have to resort to other means in order to get a close fitting jacket over the sternum, which does not touch the hammock at its upper part. This is obviated by cutting wedges out of the top of the jacket where it does not touch the chest, and approximating the edges thus made by additional turns of the plaster bandages. Another means of gaining a like end is placing the

patient in such a position on the hammock that the hands just reach the upper cross-bar to which the hammock is attached, so that after the lower part of the jacket is finished, the upper part of the hammock may be cut through and the patient holding by his hands can sag down into a position of lordosis. In this position the jacket may be finished, though it entails a certain amount of fatigue to the patient. This, however, can be lessened by having straps or towels support the forehead and the thorax, where the jacket is already completed. By this method a nicely fitting jacket is obtained, but much time and care is required for perfecting it.

In very acute cases, however, it is well to resort to these methods of either suspension or recumbency, to lessen the pain incident to the superincumbent weight on the carious vertebræ.

With these methods before me, I had made the apparatus which I am about to describe. Its aims have been, first, to put the patient in as comfortable a position as possible, in which at the same time he can keep reasonably still; and secondly, that the position shall be such as to elevate the ribs and cause a backward bending of the spine, producing a certain degree of lordosis involving both the dorsal and lumbar regions.

The object of this is, that the centre of gravity of the body may be thrown further backwards and the superincumbent weight be removed more or less from the diseased body or bodies of the vertebræ, to the *healthy transverse and articular processes*.

The first of the aims, a comfortable seat, is met by utilizing a stool, on which is fastened firmly a bicycle seat, taking up no space laterally. The feet are supported on stirrups, made adjustable by a sliding joint and pin. The sliding joint works on a rigid rod, which in turn can be moved through an antero-posterior arc, so that the legs can be put in any desired position, by means of a bolt which passes through the arc and rod.

The second aim, that of the production of lordosis, is met by having an upright, which extends some distance above and behind the patient's head and has a cross-bar on its top making a T. From this cross-bar descend rods on which are handles. These rods are made adjustable at the cross-bar for long or short arms, broad or narrow shoulders, by a double joint, by which they can be moved up or down and also sideways. The central upright is attached near the bottom of the stool behind, by a joint which allows motion in an antero-posterior direction, regulated by a set-pin and an arc which projects back from the seat.

Thus it will be seen, when the patient grasps the handles, his arms being stretched upwards, and the central upright is moved backwards, the pelvis being more or less fixed, the result is the ribs are raised, the shoulders and spine are curved backwards. Then the jacket can be easily applied and carried higher up and closer over the sternum than is possible by other methods; an end which we wish to gain in all jackets for Pott's disease, thereby preventing as far as possible the forward bending of the spine.

Thus far the advantages presented by this apparatus seem to me to be, 1st, the jacket thus applied fixes the spine in the most advantageous position for lessening the tendency for the production of deformity. 2d, the rapidity and ease with which a jacket may be applied, as it requires, as a rule, no trimming at the crease of the groin in front nor in the axillæ, notwithstanding the fact it is carried high up on the sternum. 3d, it seems applicable to dorsal and lumbar caries, especially the former. In high dorsal caries these jackets should be supplemented by a head-support or jury-mast, as is done in jackets applied by other methods for disease in this region. 4th, it seems a comfortable jacket to the patient, as the thorax is well supported, and the superincumbent weight is removed from the diseased vertebral bodies to the articular processes and hips.

I wish to especially emphasize the importance of the rigid supports, for the hands and feet in this apparatus, as swinging ones were tried and found unsatisfactory.

Certain precautions are necessary for the successful application of a jacket by this method: firstly, to avoid fatigue to the patient the arms need not be elevated after the handle-rods and uprights are adjusted until just as the plaster-roller is to be applied, which although but a question of a few minutes will be found a point worth noting clinically; secondly, to insure a close-fitting jacket over the pelvis it is well to have the legs fully extended on the stirrups; thirdly, to avoid breaking up adhesions that may have already formed in partly anchylosed spines, it is not advisable to carry the backward bending to a point where discomfort is produced, which should be our guide in fixing such cases. Finally, in many cases to apply a comfortable and successful jacket a forward projecting rod is fastened to the central upright, from which a head sling extension can be used to insure support and further steady the patient when restless, nervous or in pain.

In none of the methods now employed is the "dinner pad" found necessary or used.

In conclusion, I wish to express my thanks especially to Dr. Hall, interne on the staff of the Children's Hospital, Boston, for his suggestions to me in developing the plaster jacket stool, and to Drs. Bradford and Brackett, Lovett and Goldthwait, I feel very grateful for permitting and encouraging me in the use of the stool at their clinics.

JOURNALS, ETC., ISSUED BY THE JOHNS HOPKINS PRESS OF BALTIMORE.

American Journal of Mathematics. S. NEWCOMB and T. CRAIG, Editors. Quarterly. 4to. Vol. XVII in progress. $5 per volume.

American Chemical Journal. I. REMSEN, Editor. 8 Nos. yearly. 8vo. Vol. XVII in progress. $4 per volume.

American Journal of Philology. B. L. GILDERSLEEVE, Editor. Quarterly. 8vo. Vol. XVI in progress. $3 per volume.

Studies from the Biological Laboratory. H. N. MARTIN and W. K. BROOKS, Editors. 8vo. Vol. V complete. $5 per volume.

Studies in Historical and Political Science. H. A. ADAMS, Editor. Monthly. 8vo. Vol. XIII in progress. $3 per volume.

Johns Hopkins Hospital Bulletin. Monthly. 4to. Vol. VI in progress. $1 per year.

Johns Hopkins Hospital Reports. 4to. Vols. IV and V in progress. $5 per volume.

Johns Hopkins University Circulars. Containing reports of scientific and literary work in progress in Baltimore. 4to. Vol. XIII in progress. $1 per year.

Memoirs from the Biological Laboratory. W. K. BROOKS, Editor. Vol. II complete. $7.50 per volume.

Annual Report of the Johns Hopkins University. The Annual Report of the President to the Board of Trustees.

The Annual Register of the Johns Hopkins University. Giving the list of officers and students, and stating the regulations, etc., of the University. Published at the end of the Academic year.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 1.—The Field of Operation through the Superior Strait. The bladder is freed from its connections above and dislocated downwards, and on the right side backwards to meet the short ureter. Its superior surface is seen uncovered by peritoneum. The angle in the middle is the lower terminus of the abdominal incision; the extent of the displacement of the bladder can be estimated by this. Forceps hold the ureter in place until the sutures are passed. A part of the ureter is seen lifted up free from the pelvic floor.

Fig. 2.—Schematic section showing the way the ureter was held by forceps and the relation of the sutures to the coats of the bladder and the ureter. All but the mucous coats of both were included.

Fig. 3.—The appearance of the ureter entering the opening in the bladder. One suture laid in place, but not tied.

Fig. 4.—Shows the snug union of ureter to bladder after both deep and superficial sutures were applied.

URETERO-CYSTOSTOMY PERFORMED SEVEN WEEKS AFTER VAGINAL HYSTERECTOMY.

BY HOWARD A. KELLY, M. D.

[*Read before the Johns Hopkins Medical Society.*]

The patient brought before the Society this evening (Jan. 21, 1895) is deeply interesting on account of the novel conditions attending an operation for the relief of a uretero-vaginal fistula.

She entered the Hospital in August, 1894, with an extensive carcinoma of the cervix, for which Dr. Russell, resident gynecologist, performed vaginal hysterectomy. The disease had extended so far out into the broad ligaments that he was obliged to place the ligatures at a greater distance from the cervix than usual. She recovered rapidly from the hysterectomy, but retained as a sequel a ureteral fistula in the vault of the vagina near the middle of the cicatrix. From this there was the usual constant leakage of urine, although she regularly passed the urine accumulating in the bladder from the other kidney. From a simple vaginal inspection it was impossible to say whether the flow from the cicatrix came from the right side or the left. It clearly did not come from the bladder, for it remained unchanged by the injection of a sterilized solution of milk into that viscus.

To decide which was the severed ureter I placed the patient in the knee-breast position and introduced my No. 10 cystoscope, when the bladder filled with air and I was able to inspect the ureteral orifices. By introducing a searcher into the left ureteral orifice I found that this ureter was intact as far as the posterior wall of the pelvis. Upon introducing the searcher into the right ureteral orifice it could not be carried in more than two centimeters, on account of meeting an impassable obstruction. The urine was seen flowing from the left ureteral orifice while nothing escaped from the right side. The demonstration was thus complete that it was the right ureter which was injured and the left was intact.

Having cleared up the diagnosis in this way I proceeded to operate to relieve the condition, October, 1894, seven weeks after the original operation by Dr. Russell.

Operation: The patient was placed in the Trendelenberg position and an incision 12 cm. long made through abdominal walls loaded with fat. Every step throughout the operation was embarrassed by the obesity of the patient. After opening the abdomen, the large fat omentum and intestines were dislodged from the lower abdomen and pelvis with great difficulty, and held away by means of cotton gauze pads.

The end of the ureter could not be found on the pelvic floor on account of the rigidity and inflammation surrounding the line of scar tissue between the rectum and bladder. The right ovary and tube were also pinned down to this scar tissue by numerous vascular adhesions. The attempt to reach the ureter at this point was therefore abandoned and it was sought out at the pelvic brim, where it was readily found after lifting up the caput coli and incising the peritoneum and pushing aside the fat. It was then traced from the point of crossing the common iliac artery down to the pelvic floor, exposing the whole length of the pelvic portion by splitting the peritoneum over its upper surface. The anterior portion of the ureter was involved in the inflammatory material surrounding the scar, which bled so freely that no attempt was made to dissect it out. Four centimeters of the length of the ureter lying directly posterior to the scar tissue were dissected out and the ureter lifted up from its bed and divided close to the scar, sacrificing as little as possible of its length.

I now found that although I had cut the ureter to the best advantage, I could not do more than merely bring it into contact with the bladder by pulling on it. It was of course evident that if I were to suture it to the bladder, exercising this degree of traction, it would pull out soon after the operation and I would have a uretero-abdominal instead of a uretero-vaginal fistula to deal with.

I was able to cope successfully with this formidable difficulty in the following manner: The bladder was dissected free from its attachments to the horizontal rami of the pubis on both sides, with scissors and fingers, and dropped down into the pelvis so as to extend it and carry it more into the back part of the pelvis, gaining at least 3 cm. in this way. By this means the ureter and the bladder were easily approximated without strain. I then made a small incision through the bladder wall, covered with fat at least a centimeter thick, at the point on the right nearest the ureteral end drawn straight across the pelvis. This incision passed through the peritoneum and was not more than 3 or 4 mm. in length and just large enough to receive the ureter snugly.

I then slit up the under surface of the ureter for about 4 mm., enlarging the caliber of its orifice to avoid a stricture, and with a pair of long delicate forceps introduced through the urethra, the bladder, and through the incision, I caught the ureteral end and drew it into the bladder and held it there while it was being attached to the bladder wall by about six fine interrupted silk sutures passed through the muscular tissue of the bladder and peritoneal and muscular coats of the ureter on all sides, beginning with the under side.

The ureter thus dissected out of its bed, and attached to the bladder, was stretched like a lax cord from the posterior part of the pelvis to the bladder, which lay gibbous and flattened out on the pelvic floor.

The abdominal incision was closed down to its lower angle, where a narrow gauze drain was inserted for fear of leakage. Care was taken in closing the incision not to draw together the peritoneum underlying its lower end, to avoid raising the bladder and indirectly pulling upon the ureter.

No leakage occurred and the drain was removed, and the wound healed without suppuration. Her urinary difficulties were immediately and completely relieved with the perfect restoration of continence.

At a subsequent cystoscopic examination I discovered the abnormally placed ureteral orifice opening into the posterior

hemisphere of the bladder into which it freely discharged its urine.

This case is one of especial interest for the following reasons:

I was able to determine on which side the injury had been sustained by my method of sounding the ureter in the knee-breast position with the bladder distended with air.

I was enabled in this instance, by a simple but delicate plastic procedure, to secure at once a perfect result without sacrificing any important structure.

It has heretofore been necessary in order to cure a similar trouble to extirpate the kidney of the affected side. It has not yet been the good fortune of any operator in this country to anastomose the ureter into the bladder at a date subsequent to that of the operation at which the injury was sustained.

About a year ago I was invited by my friend, Dr. Boldt of New York, to perform a similar operation for a similar condition. I found, however, upon opening the abdomen that the cellulitic inflammation, in the present case localized near the vaginal vault, in that instance extended up the ureter, encasing it (periureteritis) and rendering it impossible to free any part of it without exciting a hemorrhage which would be beyond my power to control.

It is further important to note that the operations of uretero-ureteral anastomosis and uretero-cystostomy must not be looked upon as rivals in the same field. Where the ureter is cut far enough back from the bladder to permit an anastomosis of the upper into the lower end, the distance between the upper end and the bladder is too great to allow a uretero-cystostomy to be considered. Where on the other hand the ureter is cut near enough to the bladder to allow the upper end to be turned into the bladder, it will be found that the lower end is so short and so awkwardly placed that a uretero-ureteral anastomosis is not to be thought of.

There is one class of cases in which the procedure is elective, that is when the ureter has become lengthened and dilated by displacement upwards over a uterine myoma.

I would in this case elect to do a uretero-ureteral anastomosis if the ureter were dilated, or a uretero-cystostomy if it were of normal calibre.

TWO SUCCESSFUL CATARACT OPERATIONS ON A DOG.

By Robert L. Randolph, M. D.

[*Read before the Johns Hopkins Medical Society.*]

It is generally known that cataract is not uncommon in the lower animals and especially in the dog and horse. In the horse cataract is apt to be the result of recurrent irido-choroiditis, and this latter affection as seen in the horse is remarkable for its tendency to relapses, appearing often periodically and representing the disease known as "moon-blindness." Cataract, then, in the horse is almost always inflammatory in its origin.

When cataract is found in the dog there is no such history of a coincident inflammation, but we find a condition that differs little from the same affection in man. With regard to the operation for cataract in the dog no special difficulties are presented as contrasted with the same operation in man, except that we are compelled to use a general anæsthetic in the former case, and this is a disadvantage. Cocain has undoubtedly lessened the gravity of cataract operations.

It is evident that the healing process in animals is surrounded with far greater dangers than is the case with human beings, and it is this no doubt that deters us from operating for cataract in the lower animals.

Early last October A. W. Clement, V. S., of this city, brought to my office a handsome pointer dog. The dog was perfectly blind and had been sent to Dr. Clement for relief. He was eighteen months old and in fine physical condition generally. His master said that he had been going blind for three months, and at the end of that time only light perception was left. On the street he would crouch at his master's feet at the sound of an approaching vehicle and could not be dragged away till the vehicle had passed. When brought to my office and allowed to smell around the room he ran into the wall and chairs at almost every turn. In being led one had to pull him along, as he was fearful of running into objects. On examination I found both eyes free from irritation. The pupils quickly responded to light. With the ophthalmoscope it could readily be seen that the lenses were opaque, and on using a mydriatic I found that they were uniformly and entirely opaque. The color presented by the cataract was more a milk-white than gray, not unlike what we see in the ordinary traumatic cataract when there has been extensive laceration of the anterior capsule and the whole lens has become immediately opaque. A similar appearance is presented by the so-called naphthalin cataract that I have produced in rabbits by feeding them on naphthalin in the manner described by Dor, Panas and others. Such cataracts belong to the variety known as soft cataract. I determined to perform discission, so the dog was first given a hypodermatic injection of morphia and then chloroformed. My instruments were boiled a half-hour before using them. Only two instruments are necessary, the needle and fixation forceps. The lids were held open by an assistant. At this time I operated on the right eye, and I may add that the pupil of the eye had been well dilated with atropia before the operation. The needle was passed into the cornea in the usual way and a crucial incision was made in the anterior capsule. Atropia was instilled and the dog was put into a small kennel and allowed to recover from the effects of the chloroform. The next day there was a large mass of cortical substance protruding into the anterior chamber. The recovery was absolutely uneventful and at no time were there symptoms of irritation. At the end of the first week Dr. Clement observed

that the dog went about the stable-yard with greater freedom. He was confined to his kennel for two weeks and whenever let out into the yard he was closely watched by the stable-man. In three weeks there was a perfectly clear pupil, and only within the extreme ciliary margin of the pupil were there any remains of the capsule to be seen. During this time atropia was dropped in the eye three times a day. At the end of three weeks I made the following test: I arranged several chairs in such a manner as to form a zig-zag path leading from one room through a narrow door into the adjoining room, and then went into the adjoining room and called to the dog. He came along the path laid out for him without a pause. This he did several times without striking a chair. I then placed a chair in the doorway and called to him and he jumped over the chair to me without the slightest hesitation. That day I operated on the other eye and used cocain. The dog was exceedingly restless and had to be held down. This restlessness was not due to pain but to nervousness, but it was enough to convince me that a general anæsthetic is indispensable. The operation was similar to the first one, and in five weeks there was to be seen only a small band of capsule lying in the pupillary area.

At this time it was impossible to detect anything wrong with the dog's vision. He moved about with freedom and rapidity, and ten days later his master, Mr. W. T. Wilson of this city, wrote me that he had taken the dog out on a hunt and had found him just as efficient as ever in so far as his hunting qualities were concerned, and that he jumped fences and ditches as readily as the other dogs in the field.

It seems then that the effect of the operation was to give the dog a vision that is practically perfect. At this time both Dr. Clement and I thought the case a unique one, and as far as I can learn it is unique in this country, but since then I have found quite a number of operations of a similar character reported in foreign journals. Among others, White Cooper[1] in 1850 gives an interesting account of some successful operations for cataract performed on bears in the London Zoological Gardens. Discission was the operation employed. Brogniez[2] reports a case of successful cataract operation on a horse nine years old, and Chégoin[3] operated successfully on an ass twenty-one years old.

As a general thing cataract in the lower animals appears in the earlier years of life, and when it occurs in the horse Crisp[4] thinks the cause is to be found in bad light and abundant exhalations of ammonia. Crisp is of the opinion that constitutional affections have little if anything to do in the causation of cataract in the lower animals, for usually the animals affected are well nourished and live for years. It will be remembered that the physical condition of my case was perfect so far as could be seen. Haltenhoff[5] reports a case of cataract in a dog associated with diabetes, but on the other hand Professor Moeller,[6] of the Veterinary School in Berlin, who has operated a number of times for cataract in dogs and horses, has never found diabetes present, and this has also been the experience of Professor R. Berlin.[7] I failed to test the urine in my case, but the general history of the dog would exclude any such complication; and I may add that in those cases of cataracts in rabbits produced by feeding them on naphthalin, frequent examinations of the urine failed to show the least evidence of sugar, though some of the clinical symptoms of these cases suggested diabetes, as for instance progressive emaciation, hurried breathing, and an excessive flow of urine.

In speaking of the causes, though, of cataract, in dogs more particularly, it is well to note the fact that accommodative strain, which may be a factor in bringing about cataract in man, can here be excluded; and inasmuch as good vision was obtained in the majority of the cases reported, it is not likely that a disease of the retina or choroid had anything to do with the existence of the cataract. Another interesting fact in connection with this case is the rapidity with which the cataract developed. Within three months after the vision began to fail the dog was blind. I was struck by the shortness of the time required for the absorption of the lenses. Ordinarily, even in very young children, it takes at least two months before absorption is complete, while in those who are older, a year or more with several discissions is the rule. In the first eye absorption was practically complete in three weeks, and in the fellow eye nearly all the lens substance had disappeared at the end of five weeks. One would be apt to think that so far as usefulness was concerned the dog would be worthless, but it will be remembered that this was not so.

I am sure that the absolute necessity of artificial help in the shape of glasses for cataract patients is much overrated. There are cases on record (quoted by White Cooper) where after the operation for cataract the patients were compelled, for the sake of experiment, to get along without glasses—in other words, to accommodate their eyes to the new refractive conditions, and after a few months they could get along quite comfortably, though of course unable to read. The vision of every animal (man included) is no doubt limited to the needs of the animal. It is not likely then that dogs are possessed of human visual acuteness, and it is evident they do not require such vision. Certainly few, if any, demands are ever made upon the accommodative apparatus of the dog's eye, so that the loss of the crystalline lens would be attended with comparatively little or no inconvenience, and the same may be said of the horse.

Possibly the good sight in these cases is to be accounted for by a reproduction of the lens fibres, and in this connection I may refer to the experiments of Cocteau and Leroy d'Étiolles.[8] These observers found that in a certain length of time after the removal of the crystalline lens in rabbits, dogs and cats, that another lens was formed. It is a curious fact that in several of these experiments the capsule showed no cicatrice, but was perfectly clear, and contained a lens as voluminous and consistent as the lens that was extracted, and differing in no respect from the latter. Gunn[9] reports a case of traumatic cataract that had occurred in a child, where, after the absorption of the cataract, later on in life new lens fibres were demonstrable. By this time a reproduction of lens fibres may have taken place in my case, but we are not justified in attributing the good vision obtained to such a process, for sight improved at the end of the first week, and the formation of new lens fibres would not likely have begun till the absorption of the old lens was complete.

From investigations made in the London Zoological Gardens it has been found that cataract is common to nearly all of the lower animals, but it is a suggestive fact that cataract is most often seen in the two animals nearest man, the dog and horse. Neither extraction nor couching seems to be proper in operating on the lower animals. The impossibility of keeping the animal quiet, or of surrounding it with any of the usual safeguards, is an objection to extraction. While Moeller has had several successful cases of extraction, he states that his best results followed discission. As to couching, the danger of intraocular inflammation makes this operation quite as objectionable here as it is in the case of man. In my opinion discission is the only operation applicable to these cases. A general anæsthetic is indispensable. A bandage should not be applied, as it attracts the dog's attention to his eye, and it will be rubbed or torn off and injury to the eye would result. It is imperative to use a sterile knife, for we cannot here nullify the effects of infection by careful after-treatment, as we sometimes do in man. A small kennel is necessary, so that no temptation is offered to the dog to move about; and finally a 1 per cent. solution of atropia should be dropped in the eye three times daily during the first three weeks. As regards the anæsthetic to be used, my preference —from considerable experience—is in favor of ether, and I have always been under the impression that it was particularly unsafe to administer chloroform to dogs. Dr. Clement tells me that he always gives chloroform and precedes the administration of it with a hypodermatic injection of morphia, and that he has never had any unfortunate results, a fact which he thinks is explained by the administration of the morphia.

LITERATURE.

1. An account of operations for cataract on bears. By White Cooper, F.R.C.S. Med. Times, New Series, Vol. I., pag. 621. London, 1850.
2. Extraction du cristallin chez le cheval, par A. J. Brogniez. Annales d'Oculist., 1843.
3. Opération de cataracte sur un âne, par Chégoin. Bull. de la Soc. de Chirur. de Paris, 425.
4. Specimens of cataract and of opacities of the cornea in the lower animals. Edwards Crisp, M. D. Trans. Path. Soc. London, Vol. XXII., 350.
5. Klinische Mittheilungen, von G. Haltenhoff. Zeitschr. für vergleich. Augenheilk., 1885, p. 65.
6. Casuistische Mittheilungen über das Vorkommen und die operative Behandlung des grauen Staares beim Hunde, von Prof. Dr. H. Moeller. Ibid., 1886, p. 138–146.
7. Beobachtungen über Staar und Staaroperationen bei Thieren, von Prof. Dr. R. Berlin. Ibid., 1887, 59–76.
8. Expériences relatives à la reproduction du cristallin, par MM. Cocteau et Leroy d'Étiolles. Journal de Phys. exper. et patholog., Tom. VII., 30–44.
9. Trans. Oph. Soc. Unit. Kingdom, London, 1888, VII., 126.

SIGMOIDO-PROCTOSTOMY.

AN ANASTOMOSIS OF THE LUMEN OF THE SIGMOID FLEXURE THROUGH THE LATERAL WALL OF THE RECTUM AT THE PELVIC FLOOR, WITHOUT SUTURE.

BY HOWARD A. KELLY, M. D.

[*Read before the Johns Hopkins Medical Society.*]

I was obliged on the 20th of October, 1894, to perform a novel operation for the relief of an artificial sigmoid anus, consisting in the anastomosis of the sigmoid flexure into the lower part of the rectum on the pelvic floor, by means of traction sutures through the severed sigmoid, pulling it into a slit in the rectum, and bringing it out at the anus. By means of a pair of forceps laid across the anus grasping the sutures, the transplanted bowel was kept from retracting until a firm union had taken place between its outer surface and the edges of the incision. The entering bowel so snugly fitted the receiving bowel that no sutures were necessary to hold it in its new position. The patient recovered from the operation and has to-day, three and one half months later, normal bowel function.

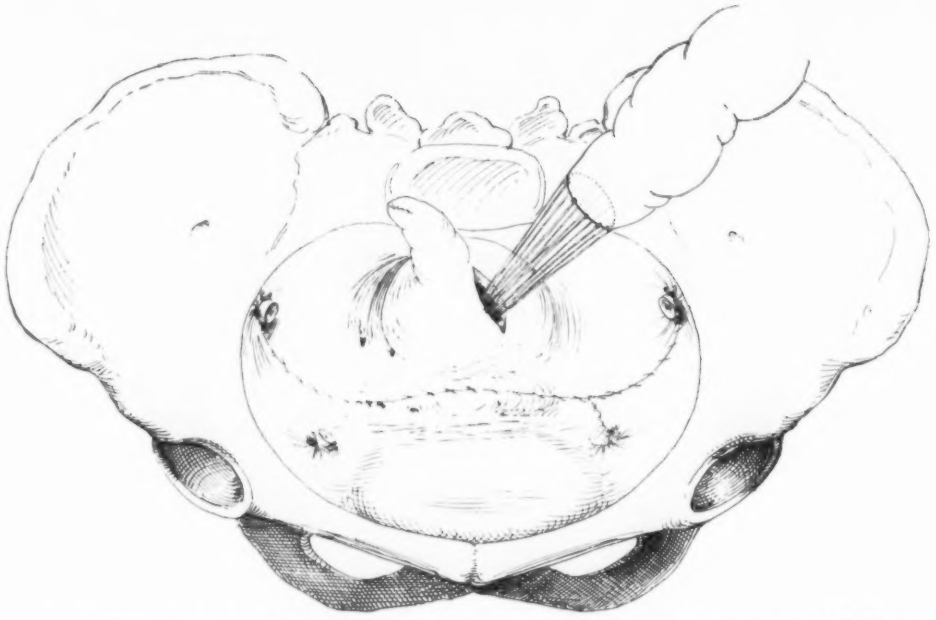
The circumstances of the case were these: One of my friends, a skilful surgeon in the South, having a poor patient who could ill afford to leave home and pay traveling expenses and hospital charges, undertook to relieve her, giving gratuitous services. Her previous history had been one of pelvic imflammatory disease accompanied with severe suffering. She was 22 years old and had been married 3 years, without pregnancy. Her menstruation had been regular until two years ago, since which time it has been coming every 2 to 3 weeks, lasting 3 days and accompanied by much pain.

After placing her under an anæsthetic and opening the abdomen he found the pelvis choked by extensive adhesions. He began the enucleation, but it became so difficult that only the right ovary and tube were found and removed. Among the matted structures in the pelvis a narrow rigid tubular structure resembling the left tube was found, extending from the brim of the pelvis down towards the pelvic floor. This was brought up and tied off. As soon as it was removed it was seen to be a section of a strictured rectum, 6 cm. long. The remaining structures were so densely matted together that their identity could not be established in spite of a persevering investigation.

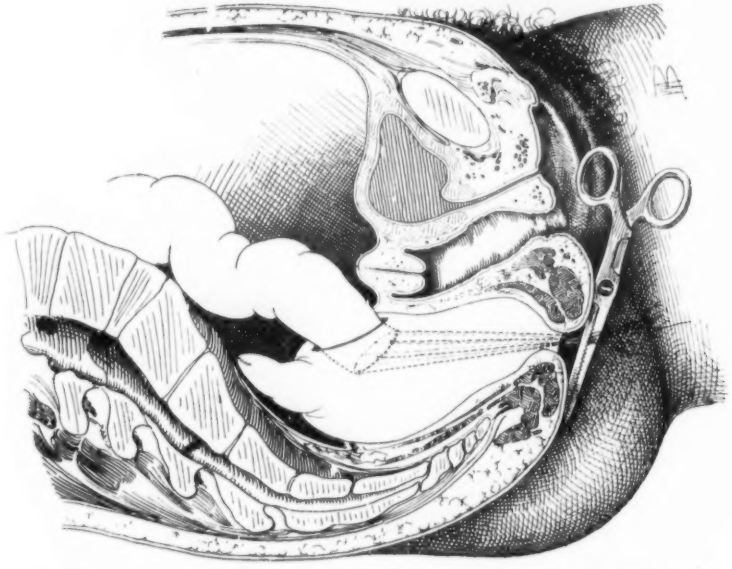
The injury to the bowel could not be repaired by anastomosis on account of the wide lumen of the upper sigmoid portion, and the rigid contracted rectal portion which was continued in the form of a long stricture as far as the pelvic floor. He therefore concluded the operation by suturing both of the divided ends of the bowel into the lower end of the abdominal incision, the sigmoid at the extreme lower angle and the rectum just above it. The incision 5 cm. long above this was closed, and the wound united and the patient recovered with two fistulæ, the active discharging sigmoid fistula and the quiescent rectal fistula.

Through my friend's courtesy she was sent to me two months

1. Shows the area of strictured bowel and the portion excised between the dotted lines.



2. Shows the strictured rectum closed and the incision made in the bowel on the pelvic floor. Traction sutures have been placed in the sigmoid flexure and drawn through the rectum.



3. Sagittal section showing the sigmoid end drawn into the rectum and held in place by forceps clamping the traction sutures across the anus.

after his operation, for further treatment at the Johns Hopkins Hospital. At the examination I found an opening above the symphysis pubis about 3 cm. long, at the bottom of which were two orifices, a larger one below about 2 cm. in diameter, through which the index finger passed readily up over the left iliac fossa in the direction of the descending colon. This was manifestly the sigmoid anus. Immediately above it, separated by a narrow bridge of tissue, was a small orifice not quite a centimeter in diameter into which the index finger was pushed with difficulty. By continuing the examination bimanually a long tight stricture of the rectum from the abdominal wall down to a point behind the cervix uteri was detected. I think that my effort to explore the strictured bowel at this time must have ruptured its coats through into the peritoneum on the right side, for her sufferings increased from that date, with a daily rise of the temperature and quickened pulse. I found also at the operation a week later an opening through the bowel into the peritoneum walled in by extensive adhesions of the small intestines associated with a wide-spread colon bacillus acute peritonitis, proved by cultures, involving the whole lower abdomen and extending up to the left renal fossa.

I began the operation by dissecting out the entire scar containing the sigmoid and rectal orifices, these were then separated, and each wrapped separately in gauze and laid aside. The incision was now lengthened and the enucleation of the inflamed pelvic structures begun.

It was necessary in the first place in order to reach the pelvic organs to detach numerous loops of adherent coils of small intestines bound together by a fresh exudate and bleeding freely; in three places the external muscular coat was so torn as to require suturing. On completing the separation an opening was found in the strictured rectum below the promontory of the sacrum on the right about 2½ cm. from the cut end and communicating with the peritoneal cavity.

The uterus and ovary and tube were so covered with dense fibrinous adhesions that it was impossible at first to tell where they lay, or to decide from appearances which tube and ovary had been removed in the first operation.

The uterus was finally discovered by cutting through the adhesions in the posterior part of the pelvis and letting out an encysted peritonitis of 120 cc., when the left tube was found and the position of the uterus traced by it; its enucleation was then continued by carefully following its contour and stripping up the adhesions, digging it out of a bed of densely organized lymph. The ovarian vessels were then ligated. The uterus was amputated in its cervical portion just above the vaginal junction after ligating both uterine arteries, and the stump of the cervix closed by antero-posterior silk sutures. The pelvis cleaned out in this way presented the appearance of a rough excavation, without any normal peritoneum, from the extensive stripping up of the adhesions on all sides.

The pulse which was 100 at the beginning of the operation, began to weaken from the first, and towards the latter part it had become so rapid as to alarm the anæsthetizer, who repeatedly admonished me that the operation must be concluded quickly. Frequent hypodermics of strychnia were given without marked improvement.

The conditions at this stage in the operation were discouraging. I had before me in the first place a patient exhausted by an extensive peritonitis, who had just been subjected to a desperate pelvic operation, including suture of the intestines. I still had left a more formidable task in the establishment of a satisfactory anastomosis between the amputated sigmoid and a rectum converted into a dense tubular stricture all the way to the pelvic floor.

I overcame these difficulties and concluded the operation in five minutes in the following manner: 3 cm. of the upper part of the strictured rectum were removed, severing it below the rupture; I then approximated the wedge-shaped flaps with silk sutures, closing its lumen. This rested on the right side opposite the second sacral vertebra. The end of the sigmoid was then caught with six long silk traction sutures passed through the peritoneal and muscular coats, entering about a half a centimeter from the edge of the incision, and emerging on the incision, without piercing the mucosa. The walls of the bowel were from 3 to 4 mm. thick and somewhat rigid, without the flaccidity of the normal sigmoid.

I now made an oblique incision into the rectum on the pelvic floor just above and behind the vagina close to the cervix, below the lower end of the stricture. This incision was made through the abdominal incision about 3 cm. long, and directed from before backwards from left to right, the greater part lying to the left. With a pair of long artery forceps passed through the anus and ampulla and out through the incision into the pelvic cavity, the six traction sutures were caught in a bunch and pulled down and out of the anus, drawing the sigmoid into the rectal incision, which was held open with forceps to facilitate the entrance. The bowel was kept from slipping back into the pelvis by grasping the traction sutures in the heel of the bite of the forceps lying across the anus in the gluteal furrow. A rectal examination showed that about 1 cm. of the sigmoid projected into the rectum. The fit of bowel into bowel at the incision as seen from above was such a snug one that the line of division between sigmoid and rectum could not be detected.

It was my intention to fix the anastomosis by means of a few sutures uniting the sigmoid to the rectum, passed on the pelvic side, but I found this could not be carried out, as there was so little room between the bowel and the pelvic walls that I could not use either needle-holder or needle.

The pelvis was washed out and a gauze pack inserted around the sigmoid and another up among the inflamed bowel and brought out at the lower angle of the incision, which was closed to this point. She made an excellent recovery and has since had normal bowel function. Since removing the pack there has been a constantly decreasing purulent discharge from the lower angle of the wound; at no time has she passed fecal matter in any other way than per anum.

PROCEEDINGS OF SOCIETIES.

THE JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

Meeting of January 7, 1895.

DR. ABEL in the Chair.

Exhibition of Surgical Cases.—DR. FINNEY.

The first case I have to show to-night is one of very marked varicose veins of the leg. The internal saphenous and its branches were enlarged more than in any case I had previously seen. He was operated upon on December 29, 1894, the operation consisting of excision of the vein and its larger tributaries. He has done uninterruptedly well. There was no difficulty in the operation. The veins were very slightly adherent. An Esmarch bandage was first put on, which rendered the operation practically bloodless. We remove the first dressing to-night, and, as you see, the result is perfect. There is nothing especially interesting about the case except the enormous dilatation of the veins and the unusual length of the incision. I have here a photograph of the case before the operation, and also the specimen of veins removed, which I will pass around for your inspection. Only here and there were the vein walls thickened.

The patient's occupation was that of a fireman. He was on his feet a great deal and exposed to extremes of temperature, especially to heat. No family history of enlarged veins. His trouble began about ten or fifteen years ago. There was not much pain, but when he stood on his feet the veins dilated very much.

Various operations for the relief of this condition have been suggested from time to time, such as the ligation of the trunk of the vein about the apex of Scarpa's triangle below the saphenous opening, multiple subcutaneous ligation, and excision of portions of the vein. None of these have been found so satisfactory as excising the whole varicose mass.

Case 2. My second case is one of more interest. He is a man fifty years of age; occupation, mason. His previous history throws no light whatever upon his present condition. There is a tuberculous taint in the family history; no malignant disease. No venereal history. Has had measles, scarlet fever, varicella, rheumatism, typhoid fever and pneumonia; all pretty close together along about 1863. Has had hemorrhages from the lungs, but for two years past has had none. Has never had indigestion nor dyspepsia. Has no alcoholic history.

His present illness is as follows: In May, 1894, he had occasional attacks of great pain between his shoulder-blades, and at times on swallowing pieces of solid food would be regurgitated. If he attempted to swallow these pieces forcibly he would vomit and choke. He became gradually worse until he was admitted to the hospital on Christmas day. He was then unable to swallow even liquids. When he attempted to swallow water it took him a long while to do so. Perhaps a little entered his stomach, but most of it regurgitated. He was failing in health and strength rapidly and weighed but 94½ pounds. No history of traumatism nor of swallowing any irritating substance. An examination of his throat by Dr. Warfield revealed nothing.

Dr. Osler examined his lungs and found a few moist râles over the right apex posteriorly; otherwise normal.

When he entered the hospital he was in a very bad condition, having taken nothing for five days. We began giving him nutritive enemata, and his condition immediately improved very satisfactorily. After a while the rectum became somewhat irritated, and we thought it best to do a gastrostomy. This was done about ten days ago, December 29th. There have been from time to time various operations suggested; all having in view the prevention of the escape of fluids by a valve-like opening. Of these the best was perhaps Witzel's, which consisted in taking two parallel folds of the stomach, sewing together their free edges over a glass tube, thus making a sinus about an inch or more in depth leading to the opening in the stomach. This has been practised with good success. Hahn's method consisted in making the opening through the eighth intercostal space, giving a bony margin to the fistula. The operation which we performed upon our patient is known as Frank's method. This consists in making an incision in the ordinary place along the edge of the left costal border and about an inch from it. A second incision is then made about one and one-half inches to the left of and parallel to the original incision, and the skin dissected free from the ribs beneath. Then a fold of the anterior wall of the stomach is lifted out of the wound and tucked under this flap of skin and brought out through the second incision; after fixing it there with sutures the original incision is closed up. Frank recommends doing the whole thing at one sitting, that is, drawing out the portion of stomach, suturing it to the edges of the second skin incision, and then opening at once. In this case the patient's condition was so good during the operation and at the end of the operation that we decided to wait a day or two before making an opening. We did this and you can see the result. It is very satisfactory indeed. The patient now takes nourishment regularly through this opening. So far we have only given him fluids. There has not been the slightest leakage, so that the valve so far works admirably. We shall begin soon to give him solid food. He can masticate it, and through an apparatus it will be inserted into the stomach. (The patient was fed before the society with about 4 ounces of milk which was introduced through a funnel. There was no leakage.)

While the patient was under ether we passed an œsophageal bougie. We were able to pass it only to the depth of 23 cm. from the incisor teeth. A No. 8 bougie would not pass beyond the pharynx. The stricture is a very tight one. I got no idea of the nature of it from the bougie. Later when his condition improves we will begin attempts to dilate the stricture both from below and above. The most probable diagnosis is carcinoma.

Acute Pancreatitis, Disseminated Fat Necrosis, Parapancreatic Abscess.—DR. THAYER.

Dr. Thayer showed a patient who had suffered from acute pancreatitis with disseminated fat necrosis, followed by a parapancreatic abscess.

The patient was 34 years of age, a piano-polisher, and had a somewhat alcoholic history. For a year and a half he had suffered from occasional attacks of severe cramp-like pain localized about in the median line, across the epigastrium and about the umbilicus. Two weeks before entrance into the hospital he was seized with severe pain associated with vomiting. The pain was continuous; there was fever and, at times, delirium. On entry a deeply seated mass was found in the median line just above the umbilicus. It could not be separated, distinctly, from the liver, which was palpable on the right, while to the left it reached about to the costal margin. It was tympanitic on percussion, and very tender on palpation. The mass was not distinctly fluctuating, but gave one the impression that it contained fluid.

The *urine* was free from albumen or sugar; the *blood* showed a fairly well marked leucocytosis.

The diagnosis of acute pancreatitis, probably associated with disseminated fat necrosis, was made, and an operation was advised.

The operation by Dr. Finney revealed extensive disseminated fat necrosis in the omentum and subperitoneal fat, while underneath, in the lesser peritoneal cavity, there was a deep abscess, at the bottom of which the finger passed apparently into the pancreas. The abscess discharged thick creamy pus, showing numerous fatty acid crystals, bacteria, and masses of necrotic fat.

Cultures were unfortunately not made from the pus, as the opening was made unexpectedly several days after a preliminary operation. Cultures from the areas of fat necrosis made at the preliminary operation were negative.

Chemical examination of the areas of fat necrosis by Dr. Barker confirmed, entirely, the views of Langerhans, who demonstrated that the fat necroses consisted of a combination of lime with fatty acids.

Dr. Thayer then reviewed the main theories concerning the nature and cause of the fat necroses and their relation to acute pancreatitis. He mentioned the importance of an early diagnosis and operation in cases of this nature.

DR. FINNEY.—A word with reference to the operation. When we opened the abdomen we came upon a mass of necrotic fatty tissue which evidently concealed pus beneath. We had to open the general abdominal cavity to get at this. I thought it better to pack off the abdominal cavity with iodoform gauze and get it closed off by adhesions before completing the operation; this was why it was done in two stages. The mass was packed around with iodoform gauze, and five or six days afterwards when we thought the adhesions were sufficiently firm it was opened into. A good deal of pus was evacuated, together with masses of necrotic fat and what looked like pancreatic tissue.

DR. ABEL.—Dr. Abel said that it did not appear to him strange that calcium soaps were occasionally found in places far removed from the pancreas. As every one knows, the fats of our body are neutral fats and contain, under ordinary circumstances at least, only traces of free fatty acids. If, now, we find salts of the fatty acids, such as the calcium soap that has been referred to, present in an area of fat necrosis, we must assume that some agent has split up the fats and that the calcium salt was formed secondarily. Now the ability to split up fats is met with in various parts of the body. Even the muscles, when removed from the body and kept with antiseptic precautions, exercise a feeble fat-splitting power on neutral fats, phenol esters and acid anhydrides. The liver, however, has this ability in a marked degree and stands next to the pancreas in this respect. From the experiments of Nencki, Lüdy, Salkowski and others we may fairly assume that neutral fats are constantly being split up in whatever tissues or organs they may be lodged. In the instance described by Dr. Thayer I think that all will admit that the accumulation of calcium soaps in the neighborhood of the pancreas is the result of the activity of the fat-splitting ferment of that organ.

Meeting of January 21, 1895.

DR. ABEL in the Chair.

Myxœdema and Exophthalmic Goitre in Sisters.—DR. OPPENHEIMER.

In the London Medical Society in 1893, Arthur Maude reported cases of myxœdema and exophthalmic goitre in the same family. Two sisters with these diseases were in Dr. Osler's wards, and Dr. Osler has kindly asked me to report them.

Case 1. Miss A., æt. 19, admitted January 26, 1894, complaining of goitre and great nervousness.

Family history is negative, excepting her sister (Mrs. B.).

Personal history is negative.

Present illness began about three years ago after a severe fright. She became very nervous and has been easily excited ever since. The heart has been beating very rapidly, and for about eighteen months enlargement of the thyroid and exophthalmos have been noticed. The voice has been husky of late. The hands tremble, especially on excitement. The appetite is good; there is no nausea or vomiting; the bowels are regular. There is no cough or pain in the chest, but she has attacks of dyspnœa.

Status praesens: She is a fairly nourished, slightly built woman; face is markedly flushed; numerous areas of transient flushing. Lips and mucous membranes are of good color. Tongue clean. Marked double exophthalmos; no von Graefe's sign. Thyroid gland is much enlarged, symmetrical. Pulse very rapid, ranging from 100 to 140. Lungs and abdomen negative. Heart's apex in sixth space; very powerful and heaving impulse; the sounds are loud; first is booming, second both loud and clear. No murmurs. There is a fine tremor of the fingers. Urine negative; no sugar.

Patient was given the dried thyroid extract, five grains three times a day, during her stay at the hospital—fourteen days. She neither improved nor became worse, but lost two and a half pounds in weight. She left the hospital on February 9, 1894.

Her physician, Dr. Melvin, writes that she had to discontinue the thyroid because of the increase of nervousness. She has been taking tincture of belladonna min. xv t. i. d. for two months and has improved somewhat. In the last six weeks she has been taking it very irregularly. On November 22,

1894, the goitre was much smaller and the exophthalmos less marked. She is, however, very irritable, and does not obey orders.

Case 2. Mrs. B., sister of Miss A., æt. 37—multipara.

Personal history: Always healthy; never had rheumatism or chorea.

Present illness: Onset about three years ago, after nursing two children with measles while she was pregnant. Some three months after birth of the child, she noticed that about two days before the menstrual period the whole body would become more or less swollen, though never pitting on pressure; this would disappear when the menstrual flow began. During the past year the menstrual periods have appeared at about six to eight weeks interval, and the swelling has always been more or less present, though worse at some times than others. The swelling never pits on pressure. Lately she has noticed that the skin has become dry and harsh and rough. She has also lost some hair lately. She always feels chilly. The appetite is good; the bowels are constipated. She is very talkative.

Status praesens: A woman of medium height, but giving impression of being very large. The face has a heavy, dull look; the cheeks and neck are very full, almost œdematous in appearance. The face is somewhat expressionless, and complexion has rather a doughy character. The supraclavicular spaces are markedly full, though there is no distinct puffiness. The arms and legs are decidedly swollen, though not pitting anywhere, the skin having a resistant feel and being everywhere dry, and in places showing a scaling of epidermis. The finger-nails are thin and show marked longitudinal striations; edges are slightly everted and show irregularities. The hair is dry and coarse. The thyroid gland could not be felt; owing to the thickness of the neck the palpation was unsatisfactory. The abdominal and thoracic viscera negative.

The patient was given thyroid gr. v t. i. d., which in a week was reduced to gr. v b. d. She at once began to improve. She lost while in the hospital, 14 days, about 11.5 pounds, and in the first 25 days after leaving the hospital she lost almost as many pounds. Her pulse on admission was 60–70, and on discharge 80–100. She looked much brighter and felt better.

Her physician, Dr. Melvin, writes, Nov. 1894, that she has steadily improved; she is now taking only three grains every other day. She is eight months pregnant, and it is interesting, that while in previous pregnancies she was very nauseated, this symptom is absent in the present one. The amount of the thyroid extract could not be decreased during pregnancy.

These cases are of especial interest in their bearing on the question of the pathogenesis of exophthalmic goitre. Although the disease has been well known for fifty years, and studied with especial care of late, there is still much difference of opinion as to its cause. As the symptomatology has become more and more complex the theories have varied.

The classical triad has had many symptoms added, relating chiefly to the nervous system. It is difficult to say which of these symptoms belong to the disease itself and which are hysterical. The tremor of Marie and Charcot is considered a constant symptom. Paresis of almost every muscle has been seen. Charcot laid great stress on the paraparesis of the legs. Paresis of the frontalis has recently been noted by Joffroy. The patient is requested to look down, and then, without raising the head, to look at the ceiling. A normal individual will wrinkle the forehead, but in exophthalmic goitre it remains smooth. This is not present in all cases, and is to be seen in some hysterical patients.

A peculiar œdema has been especially noted by Moebius and Maude. It does not necessarily occur in dependent portions, and resembles angioneurotic œdema. Non-pitting, hard, œdematous areas have also been seen. In a few cases (Sollier, Kowalewsky, von Jaksch) there has been true myxœdema associated with exophthalmic goitre.

To account for these symptoms there are at present only three well-supported theories: 1, that it is a pure neurosis; 2, that it is due to a central (medullary) lesion; 3, that it is due to increased and, perhaps, perverted function of the thyroid gland.

The chief arguments in favor of the first theory are:

1. The frequent neuropathic family and personal history. Cases of exophthalmic goitre in the same family are not uncommon.

2. The onset with emotion.

3. The frequent association with chorea, hysteria and epilepsy.

4. The absence of any definite lesion.

5. The cases cured by some slight nasal operation.

Against these may be urged that the meagre pathological testimony may be due to lack of skill. The mortality is too high and the acute cases totally unlike a pure neurosis. The patient's statements as to the onset and its causes are always to be looked on with suspicion.

The theory of a central lesion has been supported by Mendel, Hale White and others, Mendel's pupil, Mannheim, in his recent work sums up the arguments in its favor. He first premises that all the symptoms could be explained by bulbar lesions. Besides this, there are, pointing to the medulla—

1. The severe course of the disease and its combination with other spinal cord diseases.

2. Filehne's, Durdufi's and Bienfait's experiments, in which incision and stimulation of the corp. restiform. and tub. acustic. produced exophthalmos, tachycardia, and at times goitre.

3. The pathological evidence. Several observers have found more or less hemorrhage. Mendel found one restiform body smaller than the other, and atrophy of one solitary fasciculus.

In most autopsies, however, the central nervous system has been negative, and in Müller's acute cases only slight, recent hemorrhages were seen.

Finally we have the thyroid theory, led by Möbius in Germany, Joffroy in France, and Greenfield and Byrom Bramwell in England. The arguments for this may be stated as follows:

1. Morbid anatomy. In all autopsies some changes in the thyroid gland have been observed, and, frequently, these have been in the direction of functional hyperplasia.

2. The action of the thyroid extract. The effects of overdosage in myxœdema were called attention to soon after the introduction of the thyroid treatment. The symptoms of

over-dosage bear a striking resemblance to those of exophthalmic goitre.

3. The usual effects of thyroid administration in exophthalmic goitre is to increase the symptoms; there are exceptions to this.

4. The most successful line of treatment so far is that tending to diminish the bulk of the goitre. Out of 68 operations on record up to December, 1894, 18 completely recovered, in 26 there was more or less improvement, 9 showed no change. In 5 death was almost immediate (one of these cases was here), and in 4 death occurred within 24 hours. In 4 cases there was apparent cure, but the symptoms returned, and in 2 cases the operation was followed by tetany.

5. The striking contrast of the symptoms of exophthalmic goitre and myxœdema. This is well shown in the two cases whose histories are given above. This is the more striking as the cases occur in the same family, the only apparent bond being some affection of the thyroid gland.

6. Finally, the course of the disease is more like an acute intoxication. It is probable that the chief brunt of the intoxication falls on the central nervous system.

It would seem that some light might be thrown on the question by injecting animals with extract of the thyroid gland of exophthalmic goitre subjects. The disease has been observed in animals.

NOTES ON NEW BOOKS.

Practical Uranalysis and Urinary Diagnosis: a Manual for the use of Physicians, Surgeons and Students. By CHARLES W. PURDY, M. D., F. R. C. P., Kingston, Professor of Urology and Urinary Diagnosis at the Chicago Post-Graduate Medical School. With illustrations and colored plates. (*The F. A. Davis Co., Philadelphia*, 1895.)

The spirit of radicalism displayed in the spelling of one of the words of the title in a measure pervades the book, though in the main and important topics the author's ideas and advice are conservative, well written, and to the point.

The book's special value lies in the fact that it brings the study of its subject up to date, embodying late researches, tests and conclusions from scattered literature, with the older and more accessible knowledge.

The writer's aim, outlined in the preface, is most commendable, and the steps taken to reach the consummation of the work, namely, a correct diagnosis, are in good order and proceed in logical sequence, though perhaps it is a trifle too much to say, especially in italics, that "*as a rule he who has accurately diagnosticated disease has already constituted himself its conqueror.*"

Stress is laid upon the undoubted value of the centrifugal tubes, not only for securing sediment for quick examination, but also for rapid estimation of amounts of chlorides, phosphates, etc.

The important subject of albuminuria is well considered in a few pages and the older and newer methods for determining its presence are given, preference being indicated for the author's modified heat and for the ferrocyanide tests. This heat test simply consists of adding sufficient saturated solution of sodium chloride to insure the mucin being held in solution while the urine is boiled with a drop or two of acetic acid; it is found an extremely delicate test in dealing with minimum amounts of albumin.

The author agrees with Von Jaksch that the presence of diacetic acid in the urine is of grave significance even if it is not directly, as Von Jaksch believes, the potent factor in the production of diabetic coma.

After presenting Ehrlich's considerations in regard to the diazo reaction, Dr. Purdy remarks, "the weight of clinical evidence strongly confirms all of Ehrlich's original claims for this reaction." Possibly in this belief many clinicians might not be able to agree.

That important new field of urinary analysis, viz., the determination of ptomaines and leucomaines, is referred to briefly. "It is strongly probable that careful investigation of the urine in this direction may throw important light upon a large class of diseases," says the writer.

Farther on in the pages devoted to the subject "The Urine as a Toxin," the somewhat recent experiments of several observers are alluded to with their conclusions. The deductions drawn, however, would seem to be rather too exact to be wholly trustworthy and needing farther confirmation before being set before students as established facts.

The book is of convenient size, well made, clearly printed, with sufficiently numerous illustrative plates, the quality of which is quite up to the average.

Aseptic Surgical Technique, with Especial Reference to Gynecological Operations, By HUNTER ROBB, M. D., Associate in Gynecology, Johns Hopkins Hospital, Professor of Gynecology, Western Reserve University, Cleveland, Ohio. (*J. B. Lippincott Co., Philadelphia*, 1894.)

It is not without a feeling of delicacy that I offer a brief review of Dr. Robb's book, as I am indebted to Dr. Robb for the dedication and have had the pleasure of writing the introductory note.

The work is quite a full presentation of the fundamental principle of surgical science, whether applied to general surgery or any of its branches. The author is thoroughly imbued with the modern spirit and well instructed in the recent teachings of the bacteriological laboratory in its relations to practical surgery. The relationship of all aseptic surgical technique to bacteriology has been properly emphasized by an excellent colored plate of the pyogenic microorganisms which stands as a frontispiece to the book. The first chapter deals with the importance of a bacteriological training for the surgeon, and gives the characteristic features of the various pus-producing organisms. The principles of sterilization naturally follow this. The hot-air sterilizer figured on page 35 might have been omitted, as it is practically useless in the operating room.

In speaking of the failure of corrosive sublimate solution to act as a germicide under certain conditions, Dr. Robb might have cited with effect a series of experiments carried out by himself and Dr. Griskey, at my request, which entirely sustained Geppert's results. The list of instruments found in Chapter 5 will be found very useful to the gynecologist in preparing for operation or in writing out a list for his nurse.

It is a satisfaction to see a good picture of the sterilized ligatures standing in test tubes on reels (p. 96), and it is to be hoped that the wide introduction which the book has already had will introduce this method of Dr. Halsted's more generally to the surgical world.

The question of drainage is well stated, with one omission, viz., the gauze drain should have received more prominence. An excellent statement of this vital topic will be found in Dr. Robb's article published in Keating and Coe's System of Gynecology just published.

It is a satisfaction in turning over the pages to see that the author has here brought together the many important inventions with which he has enriched our gynecological technique for some years past.

The Kelly operating table figured on page 151 is now provided with a simple, easily adjustable Trendelenberg apparatus. It would have been well here to show Edebohl's table which so admirably meets all the requirements of abdominal surgery.

In conclusion, the work forms a very satisfactory whole, and it is a pleasure to know that it is already finding its way into the hands of surgeons all over this country. H. A. KELLY.

A Manual of Organic Materia Medica and Pharmacognosy. An introduction to the study of the vegetable kingdom and the vegetable and animal drugs. By LUCIUS E. SAYRE. (*Philadelphia: P. Blakiston, Son & Co.* 1895.)

The book opens with a short sketch of the general principles of botany, merely enough to enable the student to understand the botanical descriptions which are given. Then follows an interesting key in which the crude drugs of the Pharmacopœia are classified with reference to some leading physical property. In the main body of the work the drugs are classified with reference to their natural order, *i. e.* all those derived from the Umbellata, etc., are grouped together, but this classification can be controlled by an alphabetical index at the end of the volume. The author's descriptions are very succinct and accurate, and are rendered clearer by numerous illustrations. The work is further enriched by a short chapter on "animals injurious to plants," by brief remarks on pharmaceutical microscopy, and by a good glossary. In an appendix, some of the newer carbon compounds used in medicine are brought together, more with the object of showing the relation of modern synthetic chemistry to materia medica than with the purpose of discussing these compounds in detail. Chloroform, for example, is treated in four lines and alcohol in six.

At times the selection of German synonyms has not been very happy; for example, the word used for aconite is Mönchskappe, whereas the German pharmacopœia mentions Akonitknollen, and the Commentary to the German pharmacopœia merely gives in addition Eisenhutknollen and Sturmhut; again, the term Wolfkirschen Blätter is used for belladonna leaves, while that used by the German pharmacopœia is Belladonnablätter; the Commentary and recent German works, as those of Kobert or von Jaksch, use Tollkirsche as synonymous with belladonna. We would call attention to a few typographical errors; for example, in paracresotic acid there is one H atom too many in the benzene nucleus; in asaprol, the formula for the acid portion of the salt should be doubled; in phenocoll carbonate, the H_2 of the carbonic acid would better be omitted. The equation for sodium di-thio-salicylate should be

$$2C_6H_4{<}^{OH}_{CO_2H} + S_2Cl_2 = 2HCl + {}^{S-C_6H_3{<}^{OH}_{CO_2H}.}_{S-C_6H_3{<}^{CO_2H}_{OH}.}$$

At times in the chapter on synthetical chemistry the C atoms are omitted from the ring compounds, at other times they are written in full; it would be better to use a uniform plan.

The work, while not full enough for a reference book, is, as it was intended to be, an excellent modern work for pharmaceutical students.

A. C. C.

BOOKS RECEIVED.

Syllabus of Gynecology, based on the American Text-Book of Gynecology. By J. W. Long, M. D. 12mo. obl. 1895. 133 pages. W. B. Saunders, Philadelphia.

Notes on the Newer Remedies: their therapeutic applications and modes of administration. By David Cerna, M. D., Ph. D. 2. ed., enlarged and revised. 12mo. 1895. 253 pages. W. B. Saunders, Philadelphia.

Surgical Pathology and Therapeutics. By J. C. Warren, M. D. Illustrated. 8vo, 832 pages. 1895. W. B. Saunders, Philadelphia.

International Congress of Charities, Correction and Philanthropy. I. Commitment, Detention, Care and Treatment of the Insane. Edited by G. Alder Blumer, M. D., and A. B. Richardson, M. D.—II. Care and Training of the Feeble-Minded. Edited by George H. Knight, M. D.—III. The Prevention and Repression of Crime. Being a report of the Fifth Section of the International Congress of Charities, Correction and Philanthropy, Chicago, June, 1893. Edited by Frederick H. Wines, LL.D. 1894. The Johns Hopkins Press, Baltimore. The Scientific Press Limited, London.

Tuberculous Pleurisy. (Shattuck Lecture.) By William Osler, M. D. Reprinted from Transactions of Massachusetts Medical Society. 8vo. 1893. 66 pages. Press of D. Clapp & Son, Boston.

Lectures on the Diagnosis of Abdominal Tumors. By William Osler, M. D. 8vo. 1895. D. Appleton & Co., New York.

Traité de Médecine. Publié sous la direction de Mm Charcot, Bouchard, Brissaud. 4to. 1894. Tome 6. 1392 pag . G. Masson, Paris.

A Location Reaction Apparatus. By Prof. G. W. Fitz. Reprinted from the Psychological Review, 1895.

Vaginal Extirpation of the Uterus and Adnexa in Pelvic Suppuration and Septic Puerperal Metritis and Peritonitis. By H. J. Boldt, M. D. Reprinted from the American Journal of Obstetrics and Diseases of Women and Children. 1895.

Hospitals for the Insane: their Scope and Design. By Edward F. Wells, M. D. Reprinted from the Journal of the American Medical Association. 1895.

Pyometra in a Cat. By T. S. Cullen, M. B. Reprinted from the American Veterinary Review. 1894.

The Cranial Nerves of Amblystoma Punctatum, with two plates. By C. Judson Herrick. Extracted from the Journal of Comparative Neurology. 1894.

Cerebral Oedema. By George J. Preston, M. D. Reprinted from the Journal of Nervous and Mental Disease. 1894.

Hysterical Pyrexia. By George J. Preston, M. D. Reprinted from the Maryland Medical Journal. 1894.

Experiments and Observations on the Summer Ventilation and Cooling of Hospitals. By Morrill Wyman. Reprinted from the Proceedings of the American Academy of Arts and Sciences, vol. xxx.

On Potassium Permanganate as an Antidote to Vegetable Poisons. By H. C. Wood, M. D., LL. D. Reprinted from University Medical Magazine. 1894.

Strontium Salicylate. By H. C. Wood, M. D., LL. D. Reprinted from the University Medical Magazine. 1895.

Contributions to our Knowledge of the Use of Animal Extracts. By J. G. Shoemaker, M. D., and H. C. Wood, M. D. Reprinted from the University Medical Magazine. 1895.

Ueber eine Färbemethode, mit der man Diabetes und Glycosurie aus dem Blute diagnosticiren kann. Von Dr. Ludwig Bremer. Reprinted from Centralblatt f. d. med. Wissenschaften. 1894.

Abstract of Introduction to Discussion on Gall Stones. Also the Anatomy of the Right Hypochondrium, relating especially to Operations for Gall Stones. By Rutherford Morrison. Reprinted from the British Medical Journal. 1894.

The Elimination of Ether and its Relation to the Kidney. By George B. Wood, M. D. Reprinted from the University Medical Journal. 1894.

Laboratory Guide for the Bacteriologist. By Langdon Frothingham, M. D. V. Illustrated. 8vo. 61 pages. 1895. W. B. Saunders, Publishers, Philadelphia.

DESCRIPTION OF THE JOHNS HOPKINS HOSPITAL.

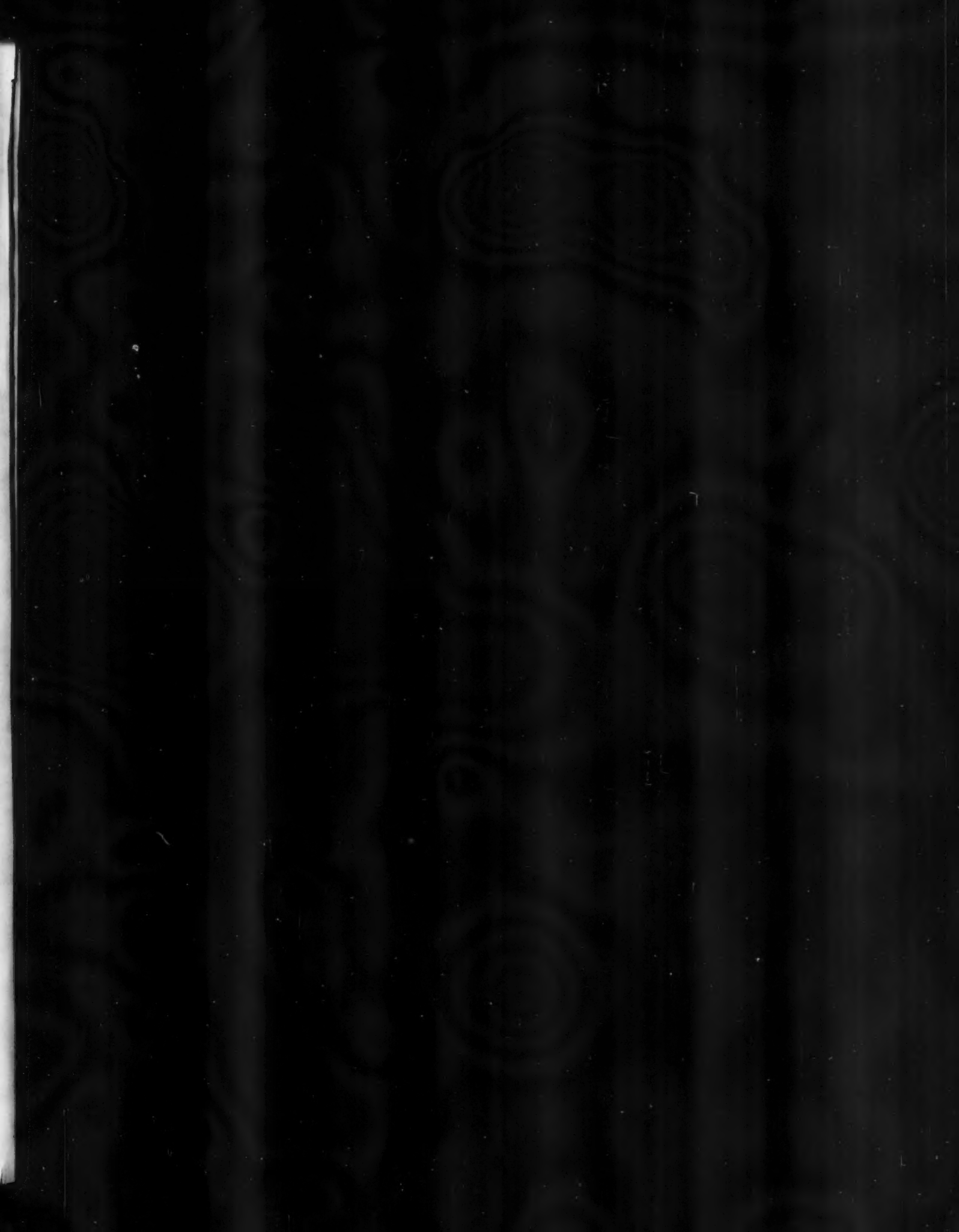
BY JOHN S. BILLINGS, M. D., LL. D.

56 large quarto plates and 116 pages of letter-press. Price, bound in cloth, $7.50.

HOSPITAL PLANS.

Essays by DRS. JOHN S. BILLINGS, NORTON FOLSOM, JOSEPH JONES, CASPAR MORRIS, and STEPHEN SMITH. One volume, bound in cloth, price $5.

Subscriptions for the above publications may be sent to

THE JOHNS HOPKINS PRESS, BALTIMORE, MD.

The Johns Hopkins Hospital Bulletins are issued monthly. They are printed by THE FRIEDENWALD CO., Baltimore, from whom single copies may be obtained; they may also be procured from Messrs. CUSHING & CO. and the BALTIMORE NEWS COMPANY. Subscriptions, $1.00 a year, may be addressed to THE JOHNS HOPKINS PRESS, BALTIMORE; single copies will be sent by mail for fifteen cents each.